

PRR
SEPTEMBER 1952

ARMY INFORMATION DIGEST

Work Simplification—Ideas in Action

Faculty System for Combat Training

Front Lines in the Cold War

Exploring the Ocean Depths

The Chaplain at Work

Soldier Scientists

Electing a President

The Story Behind Army Feature Films

Improvisation in Command Conferences

• • •

ARMY INFORMATION DIGEST



ARMY INFORMATION DIGEST, an official Department of the Army publication, is published monthly under the supervision of the Commandant, Armed Forces Information School, Fort Slocum, New York, on behalf of the Chief of Information, Department of the Army. The DIGEST provides timely and authoritative information on the policies, plans and operations of the Department of Defense, the Department of the Army, the other services and the reserve components. Material in the DIGEST may be reprinted provided credit is given to ARMY INFORMATION DIGEST and to the author. Manuscripts on subjects of general interest to the Armed Forces are invited. Direct communication is authorized to: Editor, ARMY INFORMATION DIGEST, Fort Slocum, New York. Back issues, as available, may be obtained upon request.

The printing of this publication has been approved by the Director of the Bureau of the Budget, 21 May 1951.

DISTRIBUTION:

ACTIVE ARMY

Admin & Tech Svc Bd (1); AFF (75); AA Comd (5); MDW (29); A (26); CHQ (12); Div (16); Brig (3); Regt (4); Bn (2); Co (1); FT (4); Sch (25) except USMA, C&GSC, AWC, AFIS; PMS&T (2); Dep (2); Hosp (15) except Gen Hosp (80); Pers Cen (3); POE (4); Ars (2); Engr Dist (1); Proc Dist (1); Mil Dist (2); Ret Dist (4); Ret Sta (1); Ret Sub Sta (1); Dspln Bks (5); Div Engr (1).

NG & ORC

Same as Active Army except (1) copy to each unit.

(For explanation of distribution formula see SR 310-90-1.)

In This Issue:



IDEAS UNLIMITED. The capacity for reducing complex and inefficient operations to simple and economical tasks—long the secret of American productivity and industrial greatness—is being applied world-wide to Army jobs to insure maximum effectiveness in supply, maintenance and service activities. Under the Army Work Simplification Program, such ideas are accomplishing tangible savings in manpower, materiel and money.

"The Work Simplification Program is, without doubt, one of the most important Army programs to improve efficiency," states The Comptroller of the Army. The scope and mission of the program are elaborated in the lead article.

THE VOTERS' CHOICE. Every four years the American people engage in a noisy yet awesome democratic rite—the election of a President of the United States. Following the turmoil of conventions and campaigns, there comes a quiet moment in a sequestered polling booth when the citizen is supreme. This year that choice is being expressed not only by Stateside voters but also by absentee voters, in Korea where bullets are being fired that the right to ballot may live, and in outposts all over the world. The importance of even a single ballot under our Constitutional electoral system is emphasized in "Choosing a President."

MODERN EXPLORERS. Since the days when Lewis and Clark pioneered the exploration of the West, and Navy expeditions traversed the Amazon and the Bering Straits, our armed services have been carrying on explorations of uncharted areas. And while the pack horse and the sailing vessel have been largely superseded in this technological age, military explorers continue to probe the realms of the upper atmosphere and the ocean depths. Some aspects of the Navy's oceanographic research are described in "Exploring the Ocean Depths."

Subscriptions (\$1.75 per year to domestic or APO addresses; \$2.25 to other addresses) may be forwarded to Book Department, Armed Forces Information School, Fort Slocum, New York, or Superintendent of Documents, Government Printing Office, Washington 25, D. C.; single issues (price 15 cents) through Superintendent of Documents only.

☆ U. S. Government Printing Office : 1952

ARMY INFORMATION DIGEST

Vol. 7 No. 9

September 1952

C O N T E N T S

Work Simplification—Ideas In Action	3
Lieutenant General George H. Decker, USA	
Soldier Scientists	13
Hazel Shore	
Electing a President	17
Improvisation in Command Conferences	27
Major Neil V. Prentice, USA	
The Faculty System for Combat Training	31
Lientenant Colonel Jack L. Weigand, USA	
The Story Behind Army Feature Films	37
Captain James J. Altieri, USA	
The Chaplain at Work	43
Chaplain Martin H. Scharlemann, USAF	
Front Lines in the Cold War	49
Captain Edgar M. Jones, USA	
Exploring the Ocean Depths	55
Major James F. Holly, USA	



U. S. Army Photograph

LIEUTENANT GENERAL GEORGE H. DECKER
THE COMPTROLLER OF THE ARMY

WORK SIMPLIFICATION-- IDEAS IN ACTION

LIEUTENANT GENERAL GEORGE H. DECKER

TIME SPENT on stamping operations was cut 75 percent so that one man could be released for other work." . . . "Installation of a cut-off valve in the boiler system saved one and one-half tons of coke a day." . . . "Use of spray gun instead of brush saved six man-hours of work time per operation."

Evaluations such as these are constantly being reported at every echelon as the Army Work Simplification Program swings into action. Put these and hundreds of other innovations together and the resulting savings of manpower and resources represents an impressive gain in Army effectiveness.

General J. Lawton Collins, Army Chief of Staff, recently emphasized the importance of such savings. "One of the basic tenets of Communism," he declared, "has always been that our American way of life could not survive unusual economic stresses; and that if we succumbed to bankruptcy—economic defeat—their purposes would be accomplished as surely as if they had defeated us on the battlefield. When we save dollars and resources we contribute as much to the defense of our way of life as if we had fired a shot on the battlefield in defense against Communist aggression."

In making its contribution, the Work Simplification Program advances beyond mere theory; rather, it is aimed at producing results even in its very first stages. Its objective is to make every supervisor in the Army his own management engineer; it expects at least one installable improvement from each supervisor reached; and it visualizes having every supervisor sufficiently versed in the program to maintain charts and studies for use as basic data in surveys, manpower studies and similar management functions. To accomplish those three goals the Army has embarked on a Work Simplification Program to create better ways of getting the job done—by eliminating bottlenecks, cutting red tape, chopping down backlogs, building up morale.

Work simplification, in general, is simply the act of improving work output by making it as simple and easy and effi-

cient as possible. In essence, it is the organized application of common sense to find better ways of doing every job. This application ranges from eliminating waste motion in routine hand operations to the complete re-arrangement of plant or office layout—even major reorganization of an agency.

The Army program recognizes that good ideas cannot be arbitrarily requisitioned. They must be generated. Accordingly, the entire program is aimed directly at the supervisor; it seeks to equip him with the necessary skills to analyze and improve existing methods and procedures. There is always a better way of performing a task by using streamlined methods, improved tools, better working conditions or shorter procedures. But these better methods are not always apparent. Work simplification training and application discovers them. The program draws on the great and often unused reservoir of practical knowledge represented by the supervisor group. Skills in sound management techniques are developed through regularly scheduled classes and on-the-job training, supplemented by an active follow-up program.

Issue of Supplies

Before: All Engineer supplies were issued through one window in the warehouse, making it necessary for employees to waste time waiting in line to receive supplies.

After: Two additional windows were installed so that three clerks worked simultaneously at separate windows.

Gains: Elimination of waiting hours for utility men.

Source: Wurzburg Military Post, European Command.

All of this does not imply, of course, that the Army has not always been conscious of costs and has not always endeavored to get its manifold tasks performed by the most economical and efficient means. But in any large organization, performance of tasks tends to follow an established or set pattern. Sometimes it may be a perfectly good pattern for a small unit but when the organization expands rapidly these established usages may break down or become over-complex. Red tape may add to the complications. And again, some units or groups may fail to take advantage of new ideas, new methods, new machinery.

Consequently, the Management Division, Office of the Comptroller of the Army, set out several years ago to determine the types of work simplification techniques most applicable to a majority of operating problems in the Army. Initially, attention

was focused on studies and related efforts already being conducted within the Army, particularly in the Administrative and Technical Services and the major commands. It was found that most such agencies had utilized wartime experience and had tailored their programs to meet specific needs. The techniques and programs being utilized in several of the Federal departments and in numerous business and industrial organizations also were studied. Experts from civilian universities were consulted on the latest developments in work simplification.

While it was found that the existing pattern of work simplification procedures differs little from that utilized during World War II, certain new designs in charts and minor improvements have since been added to facilitate integration of new techniques to specific operations.

As a result of its studies, the Department of the Army has adopted five basic techniques of work simplification as set forth in Special Regulations 11-110-2 and Department of the Army Pamphlet 20-300.

The first of these techniques is an analysis of distribution of work by recording the activities of the organization and the assigned tasks of each individual in each activity. This is recorded on a *Work Distribution Chart*, which is supported by a task list and an activity list. (See Chart A.)

Second of the techniques is an analysis of the details of the work through preparation of a *Flow Process Chart*. This is designed to give a step-by-step outline of each procedure involved. (See Chart B.)

A thorough study of the effect of the volume of operations on the methods and procedures under study comprises the third technique. Technically called a *Work Count*, this gives indications of possible need for adjusting work assignments and eliminating bottlenecks.

In manual type operations—assembling a machine gun, for example, or washing an automobile—a *Motion Economy Analysis* is made to determine all possible ways of performing the given job with less physical effort and with increased efficiency. This technique involves the application of the principles of motion economy to any given work area.

Finally, there is *Layout Charting*—an analysis of the physical arrangement of facilities in office, plant, warehouse or other areas to determine the effect upon methods and procedures. The Layout Chart actually is a simple method of tracing the processing and travel of materials, documents and personnel

Charts Used in Analyzing Work Methods Under the Army Work Simplification Program

[illegible]

CHART A

FLOW PROCESS CHART (DA Pamphlet 30-300)				NUMBER		PAGE NO.		NO. OF PAGES					
PROCESS <input type="checkbox"/> MAN OR <input type="checkbox"/> MATERIAL				SUMMARY									
				ACTIONS		PRESENT		PROPOSED		DIFFERENCE			
CHART BEGINS _____ CHART ENDS _____				<input type="radio"/> OPERATIONS		NO.		TIME		NO.		TIME	
				<input type="radio"/> TRANSPORTATIONS									
CHARTED BY _____ DATE _____				<input type="checkbox"/> DELAYS									
				<input type="checkbox"/> STORAGE									
ORGANIZATION _____				DISTANCE TRAVELLED									
				(Feet)									
DETAILS OF <input type="checkbox"/> PRESENT <input type="checkbox"/> PROPOSED METHOD				OPERATION		TRANSPORTATION		INFECTION		DELAY		STORAGE	
				DISTANCE IN FEET		QUANTITY		TIME		ANALYSIS		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WHY?		WHY?	
				WHY?		WHY?		WHY?		WH			

CHART B

through some particular operation—as for example the routing of an order from the time it is received until it is filled.

Purpose of all of the techniques is to provide a systematic approach for analysis of problems and installation of improvements. Field personnel are encouraged to develop related techniques as soon as they have thoroughly mastered the basic ones. Obviously there are many other techniques of work simplification but the present Army program is limited to these five which have been widely tested by the Army and industry and are simplest to understand and use.

As early as 1948, the Office of the Comptroller, European Command, employed a team of three consultants to explore the possibility of a package work simplification program for use in the European Command. A pilot study program was installed in the Munich Quartermaster Depot. As a direct result, the program then was instituted in nine Technical Service installations; later it was extended to all military posts in the Command. The program was implemented in three phases—a testing period, a dramatization period and a refinement period.

Reclamation of Cleaning Solvent and Diesel Oil

Before: Cleaning solvent and Diesel oil used for washing vehicle parts were discarded when dirty.

After: Cleaning solvent is cleaned by means of a three-unit filter, and Diesel oil by means of a two-unit filter. Both fluids can be used over and over again.

Gains: Saving of \$5250 worth of cleaning solvent and \$108 worth of Diesel oil annually.

Source: Hanau Signal Depot, European Command.

This three-phase procedure has been adapted for application through the Army as a whole. At present, most of the Army is completing the testing period, which includes preparation and distribution of new materials to the field. This will be followed by the dramatization period, where results and accomplishments are disseminated to portray the benefits. The refinement period will enable the Army to review its progress, to make refinements and enlarge its scope and field of endeavor.

It is a basic tenet of the Work Simplification Program that all military and civilian personnel should have the opportunity to participate in management improvement activities. At the same time, adequate recognition is to be accorded to everyone who develops an improved operation which results in economies,

increased efficiency or both. Suitable commendations, awards or other recognition is given to military personnel while civilians are entitled to cash awards and in-grade promotions.

In the program carried out in the European Command, some four thousand supervisors trained in the techniques of work simplification initiated more than four thousand ideas or proposals. More than sixteen hundred of these were adopted and put into effect. The potential annual economies amounted to about two and a half million dollars. Cash awards of about twenty-eight thousand dollars were distributed.

Movable Work Benches

Before: When transmissions, clutches and starters were removed from tractors and cranes, the heavy parts to be dismantled were hauled out by crane and carried by four to six men to the work bench. After overhauling, the parts were again transported and set in by crane. The parts weigh from twelve hundred to eighteen hundred pounds. The work is heavy and dangerous.

After: The work bench is now placed beside the engine, the removed part is hauled out by crane and put on the bench where it is processed. The work is done more quickly and with less effort.

Gains: Savings in labor and transportation.

Source: Nuremberg Military Post, European Command.

Determination of the type of program to be developed, as well as the organizational units to which they will apply, is the prerogative of command. At present, efforts are largely concentrated on support activities such as supply, maintenance and service operations.

Commanders and their staffs are watching the progress and achievement of the Army-wide program. A typical example of the ever-widening scope of the work simplification training technique is that recently conducted by the Office of the Surgeon General at Walter Reed Army Medical Center. There thirty-five management personnel were given a three-day course in methods of teaching the program to the Center's sixteen hundred supervisors. The thirty-five now are spreading their knowledge down to the supervisor level. The same approach is being followed throughout the Army.

In all affairs involving management, a dual approach—from the top down and from the bottom up—is required for success of the program. Every effort is made to insure that those

in command are as interested as those at the supervisory level. Key staff officers and heads of activities are encouraged to attend appreciation sessions so that they may see the benefits of the program and observe the work analysis materials that are given to the supervisors.

The supervisors themselves are taught to gather relevant facts quickly, organize them in simple chart form, interpret them accurately and take action on certain improvements within their own units. Proposals affecting wider areas of the organization are referred to their superiors. Thus the entire program is not a single-shot affair but a continuing, expanding process.

Removal of Sprocket Wheel Hubs from M26 Tanks

Before: The exchange of sprocket wheel hubs, a common and often repeated operation, required the services of a special shop equipped with large hydraulic presses and often necessitated bringing tanks from distant posts.

After: A special pull-off device was made for removing tight fitting sprocket wheel hubs from M26 tanks. This device consists of a plate 30 mm. in thickness with hooks attached on the bottom surface. A main spindle to exert pressure against the sprocket wheel is located in the middle of this plate and contains, on its upper end, a twelve-sided head and corresponding wrench for tightening purposes. This device can be made to exert a pressure of sixty tons.

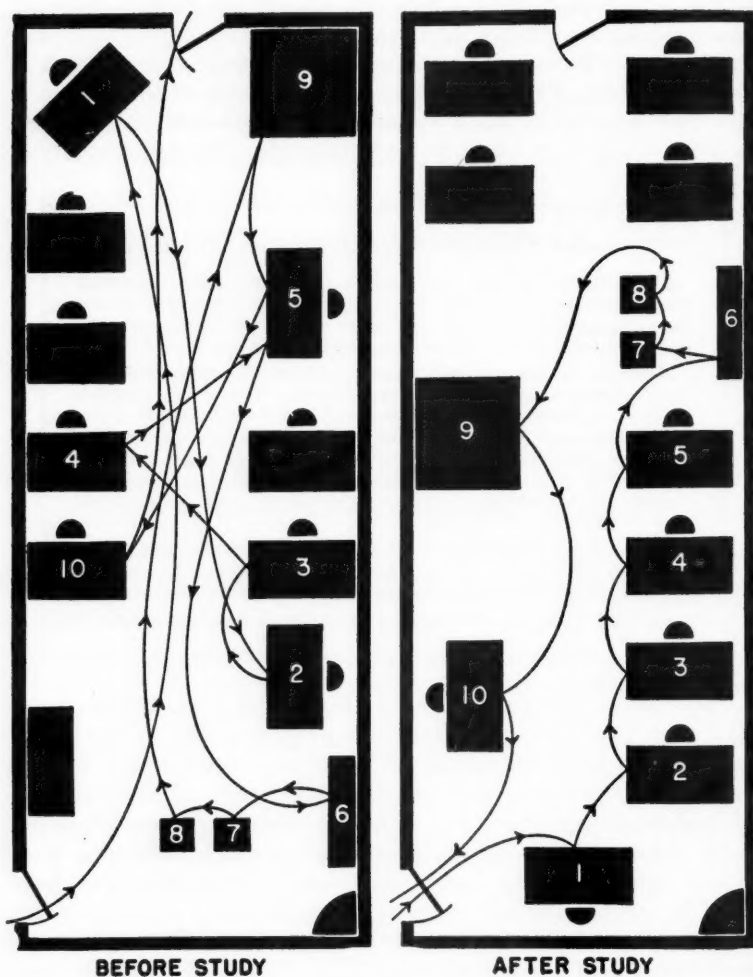
Gains: Use of special pull-off device proved very satisfactory. Removal of wheel hubs no longer required the services of a special shop. Considerable time and money have been saved.

Source: Butzbach Ordnance Depot, European Command.

Supervisors are taught to use tested methods in solving everyday work problems as well as new problems that arise. At the same time, ideas conceived by individual employees receive careful consideration at every level of command. The success of such a program depends upon the encouragement of grass-roots thinking and careful consideration of the resulting proposals. Already in one major command, more than four hundred improvements have been made each month for three years at an estimated saving of more than twenty man-hours for each man-hour spent on the program.

In some instances it is easy to compute actual savings, either in dollars or man-hours. One such improvement is a valve-puller which extracts (and also can replace) all engine valves simultaneously. Previously, in repairing motors, about seventy

Layout Charting for Increased Efficiency



By studying the physical arrangement of office desks in relation to actual work flow, the supervisor was able to step up over-all efficiency as revealed in the "Before" and "After" studies above.

minutes were required to pull and replace the valves one by one. Now the job can be done in fifteen, a saving of fifty-five minutes on each operation. The shop that evolved the special tool handles about five hundred such jobs each year. All in all, some four hundred and fifty man-hours are saved annually.

Another work simplification device is a fixture for removing field coil screws from starters and generators. Originally this operation required the exertion of considerable pressure with hammer and punch and even then the task took from fifteen to twenty minutes to loosen each screw. With the innovation of a new fixture, the screws can be loosened in forty-five seconds and with less danger of damaging equipment than by the old method. This device, it is estimated, saves one hundred and thirty man-hours a month in the shop that developed it—practically one man's full working time.

Special Forklift Shoe to Unload Lumber

Before: Hundreds of boards came in daily by truck. Unloading was performed by manual work, piece by piece, thus causing considerable loss of time.

After: Boards are now unloaded by using a forklift. On one of the prongs a movable iron shoe is provided with a certain number of spikes. The forklift moves under the projecting ends of the boards, pulling them all together a certain distance out of the truck. A wooden horse is placed under the boards between the truck rear and the forklift to keep boards in a horizontal position. Shoe is removed from forklift. Forklift moves under center of boards, wooden horse is removed, forklift carries the complete load to the place desired where boards are piled on a pallet.

Gains: Usable in all places where boards are to be unloaded in large quantities and a forklift is available.

Source: Berlin Military Post, European Command.

Not so tangible but nonetheless real are the savings achieved in many offices as a result of work distribution and flow process studies. Charts are made of the work load of each individual and as a result changes in office procedure frequently can be made to increase efficiency of the entire unit. In the flow process study, a chart is made tracing the movement of work through an office. The clerical and stenographic time required at each desk, the number of signatures, the space it travels from desk to desk, and other data are set down. The chart is then analyzed step by step and at each step the question is raised: Is this portion of the work necessary? If not, changes are made; a whole office

may be re-arranged in order to speed up the flow of work.

The same careful scrutiny is focused on the motions of those performing routine tasks. Often jobs that have been long performed by time-honored methods can be re-arranged in a way that will save motion and therefore time. Work benches may be re-arranged to save time of mechanics, or necessary outlets for electricity, compressed air and the like may be piped to the workman so that he need take only a few steps in performing his daily task instead of the hundreds previously necessary. By placing all tools within easy reach, for example, the mechanic saves man-hours—and avoids a good deal of waste motion and fatigue as well. These innovations often bring about improved worker morale which in turn is reflected in increased productivity.

As each supervisor becomes imbued with the simplified approach to problems of waste motion, non-productive effort and improper utilization of manpower, materiel and money, a dynamic force is released. Each job becomes a challenge to creative effort. Translated into practical achievements, the Work Simplification Program is a story of gadgets, of men and ideas, of a scrap pile that has saved thousands of dollars, of work-saving devices and equipment which were unheard of just a few years ago. Most important, it is the story of men who "take their jobs home with them at night in their heads." Maximum resourcefulness—the results of many minds working together as one team—is one of its lasting by-products.

Many of the improvements are small in themselves; but thousands, taken together, make an impressive total of man-hours and resources saved. Given the proper command support, a means to measure and evaluate accomplishments, plus a top-management show of appreciation and the Army Work Simplification Program—which is just beginning to demonstrate its potentialities—will produce even greater results.

SOLDIER SCIENTISTS

HAZEL SHORE

A SOLDIER in Korea suddenly comes down with a high fever and dark areas—hemorrhages—show under his skin. A special laboratory worker goes quickly to the soldier's bedside in a front-line hospital, takes a sample of his blood, places it under refrigeration and sends it air express to Tokyo. There it is delivered for analysis to the 406th Medical General Laboratory, the Army's GHQ for directing the fight against diseases which attack our troops in the Far East.

The 406th Laboratory is combatting several diseases which are as ruthless and tricky as the Red enemy on the battlefield. One of these, hemorrhagic fever, whose symptoms include hemorrhages under the skin and in the intestines, has killed about 8 percent of its victims among the United Nations troops. So far its causes have never been diagnosed or identified.

Its appearance among United Nations troops in 1951 came as no surprise to the staff of the Laboratory. They had marked it as a potential enemy from the day the Korean hostilities started. Old medical records showed it had struck down Japanese troops in Manchuria years before and word had leaked out of Siberia that it was appearing among Russian troops there.

Today the Laboratory is working along many paths to find the answers which will defeat hemorrhagic fever. It is experimenting with mice, guinea pigs, rabbits and horses to isolate the virus, which, according to earlier research by Japanese doctors, seems to grow only in living animal tissue. Meanwhile, soldier scientists in Korea are trapping wild rodents in areas where the fever has occurred and collecting the fleas and other parasites which they find on the rodents for identification. As each new case of the disease is reported other soldier epidemiologists go up to the front lines, if necessary, to investigate local conditions and report back on their findings. Still other medical workers bring laboratory animals up to the front-line hospitals where the animals receive injections of blood samples taken

HAZEL SHORE is on the staff of Public Information Office, General Headquarters, Far East Command.

from hemorrhagic fever patients during the first five days of the illness, the period during which transmission is possible.

The staff of the Laboratory is also fighting another disease which has struck United Nations troops in Korea, the so-called Japanese B encephalitis, commonly known as "sleeping sickness." The malady got its name after being identified for the first time in Japan during an epidemic in 1924. It broke out again in 1935 and then, in 1948, it attacked eight thousand Japanese, killing three thousand of them. The disease waited until 1949 before striking any Americans; in that year doctors reported ten cases among occupation personnel.

Technicians at the 406th learned to watch for certain warnings. First came a wave of cases among the Japanese, followed by a definite increase of certain types of mosquitoes. Soldier entomologists collected and studied millions of mosquitoes to determine which ones carry the Japanese B virus.

Tracking down the virus not only led the researchers to Korea, but to Guam, Okinawa and Formosa where the disease also occurs. Then, because they suspected that birds might be spreading the malady from one island to another, the staff of the 406th began a systematic classification of all the birds found in Japan. This was a tedious and difficult task, partly because no migration dates had ever been kept.



A pathology technician studies blood specimens of United Nations personnel hospitalized with hemorrhagic fever.

U. S. Army Photograph

The 406th staff has also attacked another disease found in the Far East, known as schistosomiasis or "snail fever." Fresh water snails serve as hosts for this parasite. It leaves the snail at certain seasons of the year and penetrates the skin of persons swimming, bathing or wading in the water. It enters the blood stream and moves to the blood vessels of the liver, eventually getting into the veins of the abdominal cavity. Symptoms later appear as colitis or dysentery.

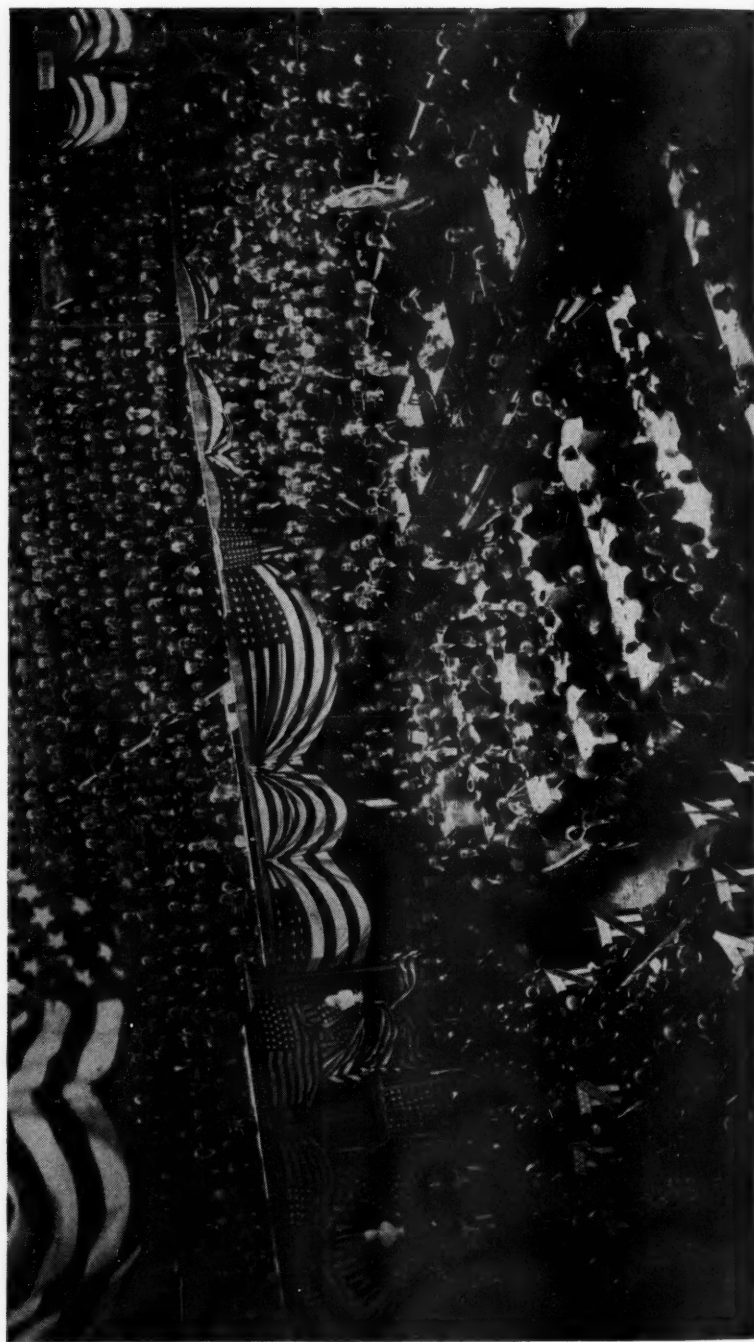
Soldier scientists made surveys of Japan to locate the infected snails and to find out how many Japanese had "snail fever." Thousands of tiny snail livers were dissected and thousands of Japanese received a series of skin tests. In one year alone eight thousand snails passed through the Laboratory and researchers examined another seventy thousand in field plot tests. They also tested five thousand chemical compounds to find a few which would render the water safe for American troops.

The winter campaigns in Korea have laid another problem on the Laboratory's doorstep—frostbite. The pathology department studied amputated extremities during the 1950-51 winter to learn more about tissue damage caused by freezing.

The Laboratory is also conducting research on other diseases which affect our military personnel in the Far East. Its list of research projects includes rabies, typhus, hepatitis, venereal diseases and influenza. In 1950 the Laboratory began an investigation to determine to what extent American troops have contracted parasitic diseases during combat or service in Korea.

Meanwhile the blood bank activities of the 406th add to its remarkable record. Three days after it was established, the "bank" sent its first shipment of whole blood to the 8054th Evacuation Hospital in Pusan and the supply of blood has never failed since. The staff collected blood in Tokyo from all kinds of donors—servicemen and civilians.

The work of the soldier scientists of the 406th Medical General Laboratory goes on quietly but dangerously. A parasite from a snail may find its way through the skin of a field worker wading in a stream, a mosquito infected with a virus may bite a technician working in the laboratory, or a mouse inoculated with rabies may bite the hand of the examiner. There are no peace talks in this war currently being fought against the diseases that attack our servicemen in the Far East.



Convention of 1890's looked much like modern scene.

ELECTING A PRESIDENT

IN ALL the history of the United States, only a few thousand persons have actually cast a ballot for President.

Before you start marshalling election figures to show that many millions—of whom you probably were one—have cast their votes in a national presidential election, and before you demonstrate convincingly that many more millions will be voting again this November, consider a few facts about this business of selecting a President.

Right now the campaign is in full swing. The political parties, meeting in national conventions, have chosen their candidates and written the platforms on which they pledge their forthcoming action if their candidate is elected. The radios are going full blast. This year for the first time television is playing an important part in the results of the election that will be staged, as stipulated by the Congress, on the first Tuesday following the first Monday in November. Predictions have been made that the largest vote in all our history will be recorded. Presidential elections always draw an exceptional turnout because of the interest generated. At the same time, the Nation will be voting for the entire membership of the House of Representatives and one third of the Senate. Many states and localities also will be picking candidates for governor or local offices.

But despite all interest, many of us forget that we are not voting directly for a President. What we actually are doing is to vote in forty-eight elections for groups of electors who in turn will meet to cast their official ballots for a President and a Vice President.

Although the results are known very soon following election day, they are not official until these votes have been sent to the Senate and there solemnly counted. Under this system, you are not voting for the President. As a matter of fact there is no law that says the electors picked in the various states must cast their ballots for the nominee. (As late as 1948 one elector in Tennessee refused to cast his vote for his party's choice.) Furthermore under this system the man with the greatest nationwide popular vote is not necessarily elected. That has happened at least twice, when in 1876 Rutherford B. Hayes was declared

President over Samuel J. Tilden and in 1888 when Grover Cleveland had a larger popular vote than Benjamin Harrison who took office. This is possible because of the electoral system of balloting by states, often called the Electoral College.

By understanding more about how a President actually is selected the citizen acquires a deeper appreciation of our Constitutional system of checks and balances and its importance in the American way of life.

In drawing up a system of government back in 1787, the framers of the Constitution faced tremendous problems. The new country, loosely bound together under the Articles of Confederation, had recently been racked by a long and costly war for independence. That war in fact had been a civil war as well, since large groups of colonists fought for the mother country. Thousands fled; there was bitter factionalism. Following the war the band of thirteen sovereign states was weak, debt-ridden, still torn by fears and factions.

So, "in order to form a more perfect union," a Constitutional Convention was called in 1787. Members of the Convention had the job of creating a virtually new nation. They had few precedents to follow. True, there had been democracies and self-ruling nations previously—the Greek city states, the Roman Republic, the Swiss Confederation and there was England itself with a long history of representative government. The charters and compacts of the colonies, the Continental Congress and of the states themselves furnished some precedents also.

But most of these institutions of government had grown up through long years. Never before had a group of men come together to form a new system of national government which would be placed almost immediately into operation.

Despite its necessarily divergent economic, factional and political views, one primary impulse motivated the Convention—that the new form of government should provide every precaution against concentrating too much power into any one person's hands. The members of the Convention had seen too many abuses of power in European governments. They wanted also to provide a form of government which would not allow the creation of a dynasty or rule by any self-perpetuating family or even a small group of people.

Thus the Constitution provided for a system of checks and balances. There would be a law-making organization—the House of Representatives to be chosen by the electorate and the Senate to be selected by the states. The Senate was devised to give the

states more voice in the new national government and also to provide a check and balance on the lower House. Then there would be the judicial branch, which would interpret the laws and administer justice. The Federal judiciary would not be elected and hence would not have to seek popular favor. Finally there would be the executive branch—the Presidency—which would administer the laws and exercise certain veto powers as a further check and balance.

Article II of the Constitution set forth the duties of and the manner of electing the President. Great concern and much thought was given to the writing of this Article, particularly to the method of election. Finally it was settled that "Each State shall appoint [not elect], in such manner as the Legislature thereof may direct, a number of electors equal to the whole number of Senators and Representatives to which the State may be entitled in the Congress . . ." It was further provided that these electors should cast their votes for two persons; all the states' electoral votes were to be delivered to the Senate and the person receiving the majority of electoral ballots was to be President, the one with next largest number Vice President. In case of a tie, or of no majority, the election would be thrown into the House of Representatives where voting would be by states, not by majority of all members.

The term of the President was set at four years. No provisions were made limiting the number of terms. Elections were to be held in every year divisible by four. In case of death or disability, the Vice President was to succeed. In case of his death or disability, provisions were made for succession by Cabinet members according to seniority.*

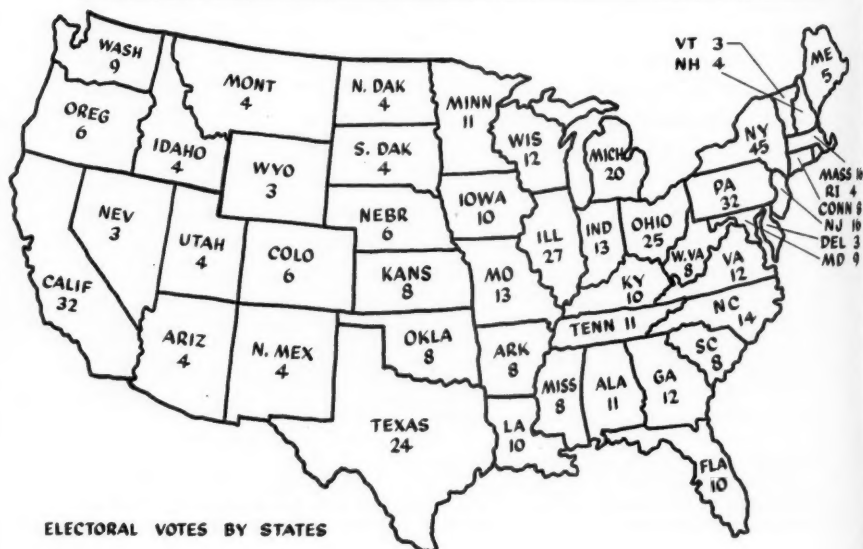
Obviously the framers of the Constitution hoped to keep the Presidency out of politics. There is no mention of procedures to be followed in nominating a candidate for the office. There is no thought—in fact no reference anywhere in the Constitution—concerning political parties who would meet in convention and nominate a man for the Presidency, as is the case today. The states were (and still are) left free to select the electors in any manner that they desired. For a long time many state legislatures designated the electors; in some instances the state gave the authority to the Governor.

* Changed by Act of Congress, 18 July 1947, to place the Speaker of the House of Representatives and the President pro tempore of the Senate in line of succession ahead of Cabinet members.

In the first presidential election, George Washington was chosen unanimously. (In 1820 James Monroe was re-elected by all but one vote—a vote deliberately cast for John Quincy Adams in order to maintain Washington's unique distinction of being elected unanimously.) Nowhere in the Constitution was any mention made of limiting the term of succession, but President Washington declined a third term, thereby setting a precedent which was unbroken until President Franklin D. Roosevelt was chosen for a third and a fourth term. Now the Twenty-second Amendment to the Constitution limits the President's tenure to two terms.

When it came to selecting a successor for President Washington, the electoral vote was seventy-one for John Adams, sixty-eight for Thomas Jefferson. This led Adams' opponents to term him a "three vote president." That record, however, was shattered in 1876 when Rutherford B. Hayes was named over Samuel J. Tilden (after it at first appeared that Tilden had been elected) by a single electoral vote—185-184.

Thomas Jefferson was the first President to be selected as the result of a tie in the Electoral College in 1800. The House of Representatives, under pressure by Alexander Hamilton, selected him over Aaron Burr, who became Vice President. This move, incidentally, contributed to the causes of the duel in which Burr killed Hamilton.



ELECTORAL VOTES BY STATES

Under such a system of selection, it was entirely possible that the Vice President might actually be a political enemy of the President! As a consequence the Twelfth Amendment was added to the Constitution requiring the electors to vote for a Vice President as well as a President. Later the Twentieth Amendment further provided for changing the inauguration from 4 March following the election to 20 January. Originally 4 March had been chosen because of the difficulties of travel and communication.

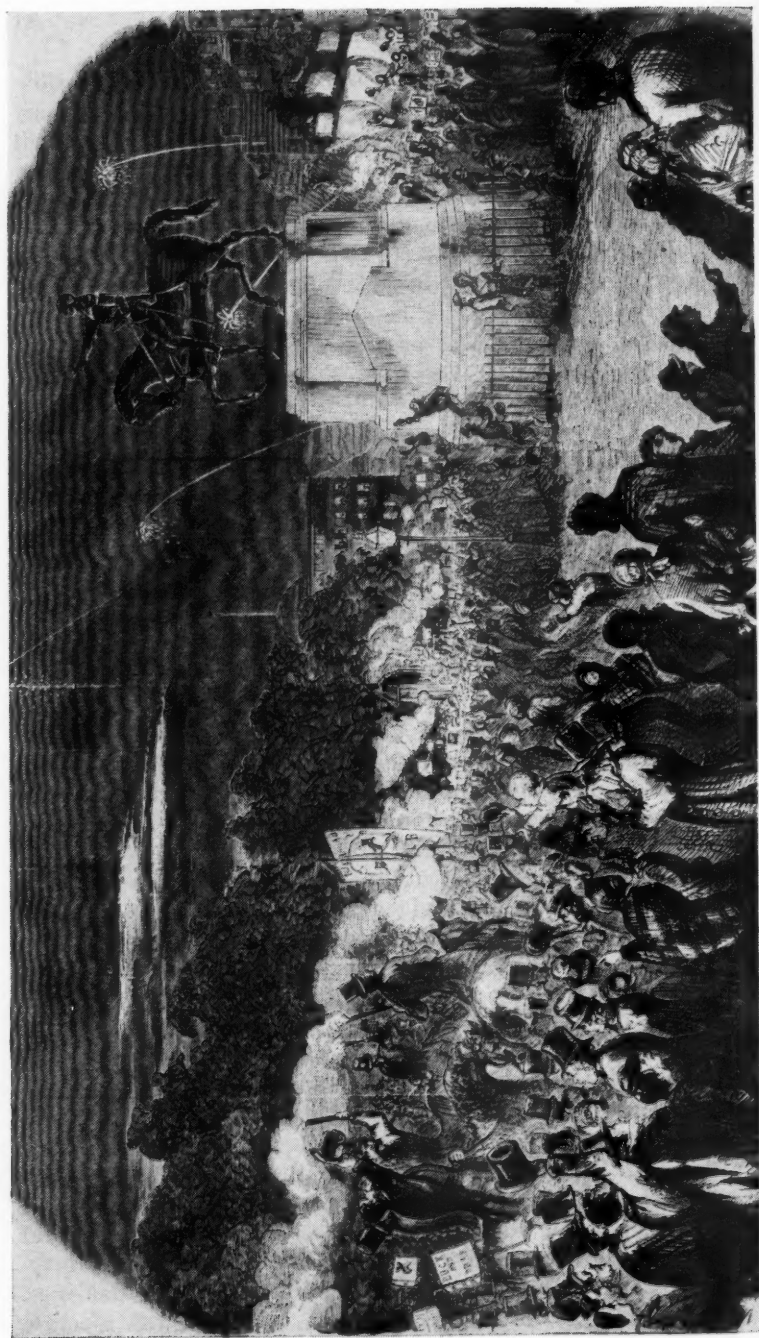
The first Vice President to become President due to death of the Chief Executive was John Tyler. William Henry Harrison, inaugurated as ninth President on 4 March 1841, caught pneumonia at the ceremonies and died on 4 April 1841. All together, seven men—the latest being President Truman—have succeeded to the Presidency due to the death of a President.

Although no provisions were made for establishment of political parties, it was inevitable that they should arise. Washington and Adams belonged to the Federalist party but Jefferson's election broke their power. Jefferson and his group advocated the extension of greater democratic power in government. Political parties were now making themselves felt, but nominating was still not one of their functions.

Obviously if each state electoral group could vote for anybody, a great many "favorite sons" would receive those ballots and, conceivably, votes might be cast for as many favorites as there were states; this would inevitably lead to chaos and confusion. Accordingly, almost from the beginning, the Congress took over the responsibility for nominating candidates. In Congress the members of each party conducted a caucus—hence sometimes called King Caucus—and reached agreement on nominations. In doing this, members of Congress insisted they were acting only as individuals. However, John Quincy Adams, while Secretary of State in 1819, protested that "The caucus places the President in subservience to Congress."

By 1824 the various presidential hopefuls—all except William H. Crawford of Georgia—discarded the caucus plan and announced themselves through nomination by their own state legislatures. But the very first attempt under this method showed its great weakness. Although Andrew Jackson received the largest popular vote, he received only ninety-nine electoral votes; John Quincy Adams received eighty-four; Crawford forty-one and Clay, who ran second to Jackson in the popular vote, only thirty-seven. Since there was no majority, the election

ME 5
MASS 11
RI 4
CONN 6
NJ 10
DEL 3
MD 9



Torchlight processions enlightened campaigns in the 1850's.

went to the House of Representatives, where Adams (with Clay's support) received the votes of thirteen states, Jackson seven and Crawford four.

That marked the end of the old era, for clearly the popular will of the people had not been reflected. When Jackson was elected in 1828 the cry went up "To the victor belongs the spoils!" and a new epoch was ushered in. Not only were Federal jobs dispensed to followers of the victors; the new political party system appeared full-blown on the national scene. The House has never since had to select a President.

The first nominations to be made by a political party through a national convention came at the very next election, in 1832. The Whig party was organized in that year and chose Henry Clay as their candidate. Shortly thereafter the Jackson Democrats called a national convention, not to nominate the General but to "cordially approve of the repeated nominations that President Jackson has received in various parts of the country!" This convention's main business was to nominate Martin Van Buren as candidate for Vice President; he succeeded Jackson four years later. The convention also adopted the two thirds majority rule, which remained in force in the Democratic party until President Franklin D. Roosevelt managed to have it rescinded in 1936.

Thus the political party became a dominant power in nominating candidates for President, something that the original Constitutional Convention had sought to avoid. But the final outgrowth of the system as it now exists—through King Caucus to state legislature to political party—was largely in answer to continued growing pressures and demands for a more popular voice in the naming of a President.

The American party system evolved along lines that fitted the framework of our government. The early fear of political parties—Madison and Washington called them "factions"—was largely based on the presumption that they would become the means for individuals or groups to seize control and perpetuate themselves in office. The Federalists were not exactly a party as we know it today, but rather a group of leaders whose interests were largely the same. The supporters of Jefferson were known as Jeffersonian Republicans but later the Whigs, then the Jacksonian Democrats, then the modern Democratic and Republican parties have since claimed that his principles were theirs.

While the number of parties has varied through the years,

actually there are only two *major* parties which figure prominently in American affairs. Political scientists consider that the American two-party system has many advantages over the multi-party system prevalent in European countries. In Germany in 1933, for example, there were about fifty parties, so that all Hitler needed to come to power was control of one party representing about 12 percent of the popular vote. The one-party system in totalitarian countries is frequently used to eradicate opposition—by purges or concentration camps if need be. In the United States, on the other hand, the two-party system is designed as a practical means of “mobilizing mass consent.” The parties are volunteer organizations which gain power only by mobilizing sufficient mass consent in support of an announced program to elect their candidates.



A voting machine set up in a store serves as the sounding board of democracy in action.
National Archives Photograph

Unlike the party system in totalitarian states where the authority is voiced by the leaders and orders go down to the broad mass of citizens, American parties are organized from the ground up. The parties' national committees are largely advisory groups and the national chairmen have relatively little power over state or local party organizations. Actually the local groups, the broad base of the party, are the most closely knit, and often the county organization will be the most influential and powerful of all.

Significantly in American history, all of the major parties have started as protest groups. The existing Republican party was started about a hundred years ago both as a protest movement and as an amalgamation of several smaller organizations including remnants of the old Whigs.

Sometimes new parties may be formed for a special campaign, as occurred when former President Theodore Roosevelt, who had fostered William Howard Taft for election in 1908, became disgruntled after he failed to get the Republican nomination over Taft in 1912. He formed the Progressive party (often known as Bull Moose party) and this split in Republican ranks gave the election to Woodrow Wilson. The same results did not occur in 1948, however, when Southern Democrats formed their own organization. President Truman was elected despite the split in Democrat ranks.

Already sufficient precedents have accumulated to establish a definite pattern of behavior of American political parties and candidates. Months before the convention, the strategy makers of the party in power begin sounding out the incumbent on his intentions. If he is eligible for another term and desires it, the biggest work of the ensuing convention will of course be selection of a Vice President, for the incumbent practically always is given the honor of being selected for a second term by his party. But if he refuses, then the jockeyings for position begin. Meanwhile the opposition party is busy weighing, judging and assaying the "hopefuls."

Frequently as much interest is generated in the pre-convention political ferment as in the election itself. Often the "availability" of the aspirant has as much to do with his selection as anything else—that is, his past record, his ability as a vote getter, his probable ability to carry the bigger states, and often the very fact that he has no important political opposition among members of his own party.

For many years an important vote-getting appeal was the humble circumstance of the birth of the candidate, epitomized in the saying that "a man had to be born in a log cabin to be elected." As a matter of fact, so far as can be determined, only three Presidents actually were born in log cabins—Millard Fillmore born in New York in 1800, James A. Garfield born in Ohio in 1831 and, of course, Abraham Lincoln born in Kentucky in 1809.

Today the vote-getting ability of the candidate is apt to be based on a different plane—statesmanship, administrative abil-

ity and personality. New factors recently injected include such elements as a good radio voice and television appeal.

In any case, each party scrutinizes every available leader and seeks to nominate the man with the best chance of winning. Usually the Vice Presidential candidate is selected for "balance"—that is, if an eastern man is nominated the party makes an effort to team him with a running mate from another section, in order to pull votes from that area. Besides selecting a candidate, the convention promulgates the policies to which it pledges itself. This statement of principles is called the platform and the various components are referred to as planks. In this way, each party endeavors to set up the issues on which the election is to be fought.

Sometimes the convention delegates cannot agree on a candidate. Even the main strategy makers—those men who are pictured as swinging blocs of delegates by decisions reached in smoke-filled rooms—cannot break the deadlock. In such case the party may turn to a comparative unknown, the traditional "dark horse." Such a classic instance occurred in 1920 when General Leonard Wood and Illinois Governor Frank Lowden were deadlocked. The two aspirants tried to compromise personally but could not arrive at a decision. As a result, Senator Warren Gamaliel Harding from Ohio was nominated and won the election.

The election itself sometimes hangs upon a few votes, as was the case in 1916 when President Woodrow Wilson apparently was defeated by Charles Evans Hughes. It was not until returns were in from remote areas in California two days after the election that the electoral vote of that state was definitely swung to Wilson, thus re-electing him.

This year, or any year, the results may well be the same. Because of the fact that we do not vote for a candidate directly, only a few votes in one state or another can sometimes decide the issue. In these momentous times, the tasks confronting the successful candidate will be at least as great as any that ever faced any President. And the choice may well depend upon your individual vote.

IMPROVISATION IN COMMAND CONFERENCES

MAJOR NEIL V. PRENTICE

THE YOUNG corporal had just graduated from the two-week Information and Education Command Conference Leaders' Course at Dachau, in the American Zone in Germany, and had returned to his home unit, an engineering battalion newly arrived in France. As Information and Education noncommissioned officer, it was his job to help set up a unit program in an isolated sector of EUCOM Communications Zone.

Both the corporal and his Information and Education officer were thoroughly imbued with the program's mission and importance; both were familiar with Department of the Army Regulations, Special Regulations and European Command Circular 115; and both were well versed in the procedure taught at the EUCOM Command Conference Leaders' School.

At the School, prospective Command Conference leaders were trained through the practical work method. By preparing and delivering talks before their fellow students, they acquired considerable experience in oral presentation techniques. In the classrooms and auditoriums, matchless facilities were at their disposal. There were sliding panels for training aids, blackboards, rostrums, bulletin and map boards. The library was stocked with all kinds of reference material and visual aids. Under these circumstances, the student's Command Conference could and did become a polished production.

But when he rejoined his unit in France in May 1951, the corporal found facilities for an effective Information and Education program far from ideal. The men of the battalion were living in pyramidal tents. There was no auditorium or reference library. No *Armed Forces Talks* or *European Command Information Bulletins* had filtered down that far in the Communications Zone. As for blackboards and sliding panels, the boys in the supply warehouse only laughed.

MAJOR NEIL V. PRENTICE, Corps of Engineers, is Information and Education Officer for the 83d Engineer Construction Battalion in France.



An improvised display in a tented dayroom relays news of current events, Command Conferences and educational opportunities. U. S. Army Photograph

The unit held its first Command Conference literally in the field. One hot day in June, shortly after the battalion had set up camp at their new station, the troops were marched out into an open meadow alongside their tents, then told to sit down and light up. The Information and Education officer unfolded a road map of France—the only training aid available at the time—and asked two men to hold it up while he talked.

"Here's where we are," he said, pointing to the name of a tiny hamlet northeast of Bordeaux. "I'll tell you as much as I know about the place and why we're here."

He could use no "committee method" or "strip-tease outline," but his talk answered numerous questions and effectively halted unfounded rumors which had cropped up in the group freshly arrived from the States.

In ensuing weeks, the Command Conferences continued to be held in the fields, for there were no indoor facilities large enough to accommodate the men. It was several months before official Information and Education supplies began to arrive. During the interim, *The Stars and Stripes* and various United States news magazines furnished the source material for current events discussions, with the bulk of the topics devoted to France.

While awaiting overseas shipment, troops had been put

through a carefully prepared series of orientation conferences based on materials received from Department of the Army and Armed Forces Information and Education Division, European Command. Most of this orientation, however, concerned Germany, since that was the unit's initial destination. Midway in the Atlantic word came via radiogram of the change in station. Consequently, no one knew very much about France.

Fortunately France has an indefatigable Ministry of Tourism. Commercial travel agencies and local restaurateurs were more than eager to supply American forces (prospective tourists in their eyes) with all manner of literature concerning French customs, monuments, hostelries, beaches, history, cuisine and the like. The American consulate in Bordeaux was also a fertile source of information material. One Command Conference even concerned the franc, its worth, and what *not* to spend it on.

When Troop Information and Education material began arriving, displays had to be improvised. Bulletin boards were not easily adaptable for use under field conditions and lumber to build these boards was pitifully scarce. To erect their first bulletin boards the battalion Information and Education personnel scoured the area for every nail and piece of wood.

As the Information part of the program progressed so, too, did the Education phase. No classes of the University of Maryland in Europe were within range, so the unit's Information and Education officer concentrated on United States Armed Forces Institute (USAFI) enrollment. One Command Conference hour was devoted to USAFI and General Educational Development testing. The results were overwhelming. The program was explained on Saturday; on Monday there were fifteen enrollments and in a few more days, fifty. At the end of three months, the battalion had over one hundred students—officers and enlisted men alike—taking USAFI courses. The engineer troops showed a marked preference for courses in building, utilities construction and maintenance, and draftsmanship. But a conspicuous number also enrolled in English, Ancient History and Freehand Drawing. Within nine months, some 17 percent successfully completed their courses.

As operations expanded, a veritable gold mine was discovered in the European Command Information and Education Book Depot, where all manner of books are available to units conducting USAFI and other classes. To aid soldiers planning to take high school and college-level General Educational Development tests, and to serve as additional study material for USAFI

correspondence courses, a number of these books were requisitioned. They proved to be an exceedingly popular addition—so popular, in fact, that more had to be ordered and all of them had to be closely guarded. Inspections in the tents revealed that the *Columbia Encyclopedia*, *Goode's School Atlas* and *Modern British and American Poetry*, among others, had crowded in with the pocket novels and murder mysteries.

By early 1952 improvisation had given way to regularized procedures. The unit had a well-rounded program utilizing Command Conferences, USAFI and all media of the Troop Information and Education program.

Many Command Conferences were devoted to "Our Mission in France," to the North Atlantic Treaty Organization and to Supreme Headquarters Allied Powers Europe. The importance of Franco-American friendship and understanding was stressed. The Conferences emphasized that each American soldier, in addition to his Army job, had a corollary duty as an ambassador of good will.

Members of the unit discovered early that no amount of generalized orientation could take the place of actually living and working with the French. The battalion frequently went out of its way, as have other United States units in France, to win friends among the local populace. It sent color guards to French military ceremonies; and its men contributed to impoverished local churches and charitable institutions. At one village, a detachment busy clearing out a wrecked *caserne* for a United States installation took time to erect a shrine to members of the French underground who had been put before a firing squad during the German occupation.

Today, thanks to a vigorous Troop Information Program, men of the engineer battalion are keenly aware that, to protect Western Europe, a stronghold must be built in France, militarily and politically; and that the free world can achieve this only by complete Franco-American friendship. Since the two countries are traditional allies, minor differences can be readily cleared up by fostering understanding on both sides. Here is where Troop Information and Education at the field level is making an enduring contribution—by helping American soldiers to understand their French friends and their collective mission, so that the ideals of liberty will not falter in the face of tyranny and aggression.

THE FACULTY SYSTEM FOR COMBAT TRAINING

LIEUTENANT COLONEL JACK L. WEIGAND

POOING of motor vehicles and other equipment has long been standing operating procedure in divisions of the United States Army. But pooling of the skills and knowledge of men experienced in teaching young citizens to become soldiers in the quickest possible time, at the least expense, and with the greatest technical skills for success in battle, is something new.

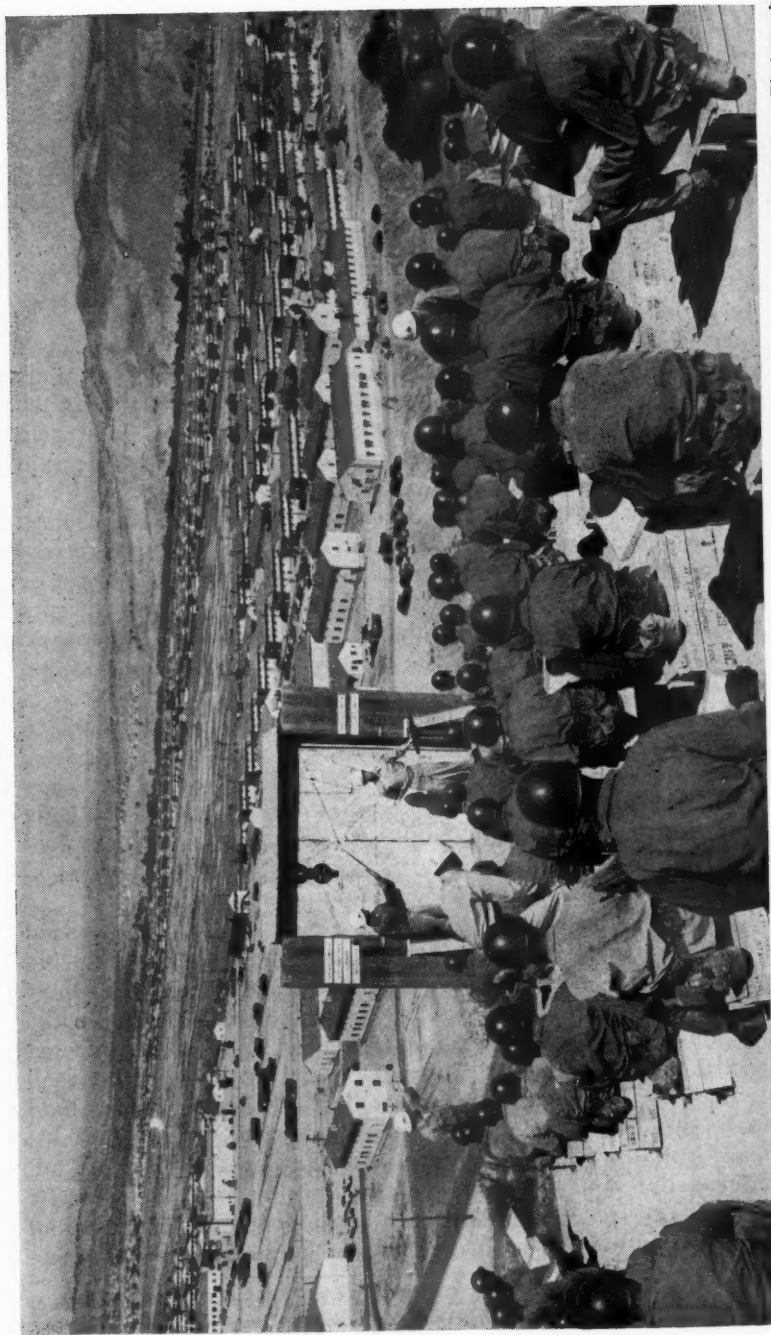
The plan, known as the Division Faculty System, originated at Fort Ord less than two years ago and is now in use there by the 6th Infantry Division; by the 7th Armored Division at Camp Roberts, California; by the 5th Infantry Division at Indiantown Gap, Pennsylvania; and by the 101st Airborne Division at Camp Breckenridge, Kentucky.

Benefits of the system have been amply demonstrated in Korea where replacements, who only a short time ago were untrained recruits, have proved to be well versed in the many skills that must be mastered by today's infantrymen. Not only did they know how to handle their weapons, but they had mastered the techniques of working together as a team—techniques that mean battlefield survival.

In theory the Faculty System is almost as old as organized education itself. It was employed to a limited degree during World War II when some regiments and battalions pooled their resources of skilled teachers and instructional facilities in the "committee system" of training. However, it was not perfected on the present scale until introduced in July 1950 at Fort Ord.

The Division Faculty method replaces the system which held each company commander responsible for the training of his men. Now the company commander can devote himself to administration and operations while training is taken over by experts and specialists. Moreover, equipment that formerly had to be issued to each company can now be pooled, thus effecting

LIEUTENANT COLONEL JACK L. WEIGAND, Infantry, is Assistant Chief of Staff, G-3, Headquarters, 7th Armored Division, Camp Roberts, California.



Soldiers learn map reading by co-ordinating the map in front of them with the actual terrain.

a considerable saving. This system, it should be noted, was not the result of the Korean action; but, happily, its introduction was timed to benefit the new crop of selectees whose induction was made necessary by the Korean campaign.

With both the time factor and economy in overhead operations of paramount importance, the 7th Armored Division conducts infantry type training only. The Division Faculty System is utilized because of its applicability in training large numbers of men rapidly and effectively.

At Camp Roberts—the largest training camp on the West Coast—training is tough and realistic. Those who complete the seven hundred and sixty-eight hours of instruction in sixty subjects have no illusions that combat will be anything but rugged, dirty work. They cross a tough infiltration course where live bullets whine overhead; they go through the close combat course where explosive charges simulate artillery fire; they “capture” an enemy village; they witness demonstrations of artillery support and tank support, which gives them some idea of the power of their own artillery and tanks and also makes them respect the enemy’s potential. The training is designed to aid the individual soldier to carry the war to the enemy as a member of the combined combat team.

The division faculty totals sixty-eight officers and three hundred and eighty-five enlisted men. Most of the instructors are graduates of the fighting in World War II or Korea, or both. Their vivid, often personalized descriptions of combat help the men view their training tasks seriously. The faculty is divided into four committees: weapons, tactics, general subjects and battle indoctrination. It is further augmented by infantry, artillery, tank and Aggressor demonstration platoons. The instructors in each section teach only one or two subjects and teach them continually. Each teacher knows that ignorance of any aspect of his own particular subjects may mean failure of the group or possibly death to the individual in the supreme test of battle.

The average instructor teaches twenty-four hours a week. He spends even more time after duty hours preparing new material, keeping informed on latest developments, improving his teaching methods or devising new training aids and facilities. Periodic faculty meetings are held to discuss methods, training aids, new teaching procedures and to consider suggestions for improvements from instructors and trainees alike.

Potential instructors are carefully screened, groomed and coached before they actually take over a class. Under the scru-

tiny of experienced teachers mock classes are staged at which voice control, eye contact, stage presence and other essential techniques of good teaching are carefully checked. This does not mean, however, that individuality and the personal approach are discouraged; on the contrary, this aspect is stressed.

Training schedules are so geared as to bring into play the advancing skills of new soldiers. Thus, while the new soldier is learning the workings of the sixteen main infantry weapons (from their care and cleaning to qualification firing) the more advanced soldier is learning something about tactics and all of the miscellaneous subjects necessary to complete his transformation from a civilian to a soldier.

Under supervision of the Weapons Committee, each trainee receives three hundred and ninety-five hours of weapons instruction. The trainee learns intimately every part of the MI rifle, his basic weapon, and receives thorough practice in handling machine guns, rocket launchers, mortars, hand grenades, carbines, pistols, flame throwers and that simple but deadly weapon of close combat, the bayonet.

While such knowledge is necessary to the soldier's success and survival, he must also understand how to work as part of a larger group. This important task is carried on by the Tactics



Trainees get practical experience in setting a compass course under supervision of an instructor.

U. S. Army Photograph



A Browning Automatic Rifle instructor, veteran of World War II and Korean action, adds a realistic personal touch to instruction. U. S. Army Photograph

Committee which performs all of its training in the field. Instruction includes every phase of tactics, from digging the right type of foxhole to the techniques of reconnaissance. The trainee is shown how his own action must fit into that of his nine-man squad and, further, how the squad fits into the larger pattern of platoon and company activity. Tactical theory also gets a thorough workout. The trainee learns the techniques of fire, combat formations, movement under fire, hasty fortifications, defense against armor or air attack, and all types of patrolling.

The General Subjects Committee directs all miscellaneous instruction necessary to complete the transition of men fresh from civilian life. It conducts training in such subjects as map reading, guard duty, first aid, military intelligence, individual protective measures, military justice, field sanitation, personal hygiene and care of clothing and equipment. Visual education techniques are widely used.

To the Battle Indoctrination Committee falls the all-important job of teaching the new soldier to adjust himself to combat conditions. Four combat-conditioners give the trainee an opportunity to apply the instruction he has received in the first fourteen of his sixteen weeks of basic and advanced individual training. The first indoctrination exercise is the well-known

Infiltration Course. After entering the course from a trench the soldier crawls some four hundred feet through a field of barbed wire entanglements and obstacles while .30-caliber machine gun bullets fly overhead and high explosives are detonated nearby to simulate artillery hits. This is followed by an assault problem in which the trainee joins with his squad and advances on a new target while firing live ammunition. If he has allowed his rifle to become clogged while crawling through the first part of the course, he gets quick, dramatic evidence of that rifle's vital importance when he is required to fire while moving forward.

The second combat-conditioner emphasizes the soldier's aptitude for team co-operation in close combat. The trainee, in squad formation, learns to make quick and accurate use of the appropriate weapon against targets the size and shape of an enemy soldier—targets which pop up unexpectedly at intervals.

The new soldier is next introduced to the Combat-in-Cities Course where he learns—again with live ammunition—the techniques of street fighting and house-to-house combat. In addition, he gains a clearer picture of the value of teamwork.

His fourth and final phase of battle indoctrination is the Attack Course. Here the rifleman is taught, by demonstration and participation, how all organic infantry weapons, tanks, artillery and air, support his mission in closing in on the enemy to capture or destroy him and secure the objective.

The many realistic demonstrations staged during training are the responsibility of the infantry, tank, artillery and Aggressor platoons, composed largely of Korean campaign veterans.

Together these four sections constitute a well-organized, highly trained and experienced organization performing in an efficient manner one of the Army's oldest and most essential tasks. Staff members keep abreast of new combat techniques and incorporate them into the plan of instruction, thus giving trainees the advantage of the best possible field training. In addition, they strive always to foster the dignity of the citizen-soldier that he may one day return to civilian life more keenly aware that the free democratic way of life is worth protecting.

Essentially the same type of training—designed to produce tough, seasoned fighting men—is given at all of the Army's infantry training centers. Wherever possible in the Army training program, similar training systems are being widely used for more efficient utilization of manpower, equipment and skills.

THE STORY BEHIND ARMY FEATURE FILMS

CAPTAIN JAMES J. ALTIERI

THIS YEAR the motion picture industry is producing more films on Army subjects or with military backgrounds than ever before. In all, thirty-five features and short subjects are in various stages of writing and production, from story outline to final film editing. In theme they range from entertaining comedies depicting the life of a recruit to action-filled war dramas. All together, they constitute an important and far-reaching medium for sustaining broad public understanding of the Army's activities.

For millions of Americans, motion pictures provide a vivid, close-up view of the Army. Productions such as "Go For Broke," "Battleground," "Breakthrough" and "Force of Arms," to name a few, portrayed with marked realism the story of American fighting men in various campaigns of World War II. From such pictures and from newsreels, the average American gains many of his concepts of war. More important, however, he gleans a better understanding of Army life and the sacrifices and hardships of the individual soldier.

It is estimated that seventy-five million people attend the twenty thousand theaters in the United States each week. A "hit" picture may reach as many as forty million persons, exclusive of foreign audiences. Assistance to the motion picture industry in the preparation of films based on military topics thus is a vital aspect of the Army's public information program.

The Office of Public Information, Office of the Secretary of Defense decides on matters of over-all policy and is the sole authority for approval of co-operation of any component of the Department of Defense in the production of commercial motion pictures, whether for theatrical or television release. Pictorial Branch, Public Information Division is responsible for implementing the co-operation of Department of the Army or any of

CAPTAIN JAMES J. ALTIERI, Infantry, is Chief, Motion Picture Section, Pictorial Branch, Public Information Division, Department of the Army.

its commands in the production of approved motion pictures. The Division's Motion Picture Section evaluates story ideas and synopses, makes recommendations for screenplay approvals and suggests the appointment of Army technical advisers. The Section arranges with appropriate Army agencies and field installations for any necessary personnel, equipment and facilities for background photography. It also approves requests for stock film scenes from official Army files and screens the finished product for final approval.

Considerable detailed planning and effort precede the release of any commercial film bearing Department of the Army endorsement. Behind the innocuous phrase "without whose co-operation this picture could not have been produced" lies a story which may best be told in terms of a typical, albeit fictitious, studio.

Epic Studio announces its intention to make a motion picture on Army combat in Korea entitled "The Big Push." The plot will deal with infantrymen attacking an enemy mountain stronghold. Troops and equipment are needed as well as stock footage from official Army film files. To make the picture authentic, Army co-operation and technical advice will be required.

Epic requests co-operation from the Department of Defense and submits an outline of the story and details of production planning to the Office of Public Information, Office of the Secretary of Defense. The request is evaluated, the proposed picture is given a priority and the project is passed to the Army's Public Information Division for recommendation. The story outline is given a thorough reading and evaluation by the Pictorial Branch and is then forwarded to the Army agency having primary interest in the picture. A story concerning chaplains, for example, goes to the Office of the Chief of Chaplains for review. If historical accuracy is involved, the text undergoes scrutiny in the Office of the Chief of Military History, while the Office, Chief of Army Field Forces reviews scripts relating to training and preparation for combat.

To qualify for military co-operation, it must be shown that production of "The Big Push" would be impracticable without Army help; that there will be no competition with private enterprise or civilian labor; that no disruption of training or operations will be entailed; that no costs to the Government will be involved; and that the picture will reflect favorably on the Army. The proposed film must be a fairly authentic portrayal of the military, although dramatic license is of course permitted

where necessary for pictorial effect. The finished product must conform to the highest standards of propriety and dignity of the service without violating established Army policy regarding operations, morale and discipline.

A few weeks after "The Big Push" receives official approval, Epic submits the first draft of the screenplay for detailed analysis as to technical accuracy. Reviewers confine their suggestions to the military aspects of the story, with recommended changes kept to the minimum.

Arrangements are made next for camera crews and production personnel to visit military installations for background shots. Authorization to draw on files of official stock motion picture footage is granted. A competent Army technical adviser is assigned to assist the film director.

The adviser for "The Big Push" is a veteran of Korean combat, capable of supplying the answers to technical Army questions. Always the adviser is flexible in his views, tactful and yet forceful enough to insure that his suggestions will be followed. He is the type of officer who can gain the confidence of the producer by his constructive suggestions. He remains responsible to the Chief of Information for the military authenticity and propriety of the story.

Authorization, meanwhile, is dispatched to the appropriate Army headquarters and to the commander of the installation where the studio crews are to go on location. Detailed instructions are given the post commander as to what military assistance may or may not be given. Filming of troops in training or on maneuvers may be done in the course of normal schedules but no enactments will be staged primarily for the convenience of the motion picture company. The studio must reimburse the Government for depreciation of equipment loaned by the Army, for transportation of equipment and for any losses incurred.

Producers of "The Big Push" submit a detailed list of filming requirements through Department of Defense. The type and amount of equipment required, tentative shooting schedules and the nature of the location sites are described. In this case, Epic wants to film part of the picture at a large infantry installation. The Chief of Pictorial Branch co-ordinates details with the commander's representative—normally the Public Information Officer—and arranges for the film director and members of his staff to visit the post to look over location sites. A tentative shooting schedule is arranged and details are worked out for furnishing necessary equipment and facilities for the production

crew. The Public Information Officer is the vital link between the producer and the commander in assuring the maximum degree of co-operation within prescribed policy limits.

The PIO is assisted by a special project officer who handles the scheduling of troop participation and who insures that equipment shall be at the right place at the right time. This officer is held accountable for all materiel loaned by training and supply sections to "The Big Push" set. The Army technical adviser, the PIO and the project officer work as a team in furthering liaison between the Army and the motion picture crews in the field. Experience has proved that if the producer is satisfied with the way the Army assists him, he accepts more readily the suggestions of the technical adviser on the set.



A military adviser stands by to verify authenticity of action and tactical situation as a scene is being filmed.

Warner Brothers Photograph

After spending several weeks shooting outdoor scenes at the installation, the cast and crew move to Hollywood for the filming of interior scenes. The Army technical adviser accompanies them as a consultant. He is called upon for advice by wardrobe experts, the art director, the property man, the director and his assistants. He assumes accountability for property on loan to the studio and is responsible that the finished production is technically accurate and authentic in detail.

Assisting him while in Hollywood is the Los Angeles Branch

of the Army's Office of the Chief of Information. This office assists the adviser in obtaining necessary items of equipment and guides him in his duties and responsibilities. The adviser reviews film footage of military sequences daily and makes any necessary suggestions to the director. While on temporary duty at the studio, the adviser's living expenses are paid for by the studio, including transportation to Hollywood and return to his home station.

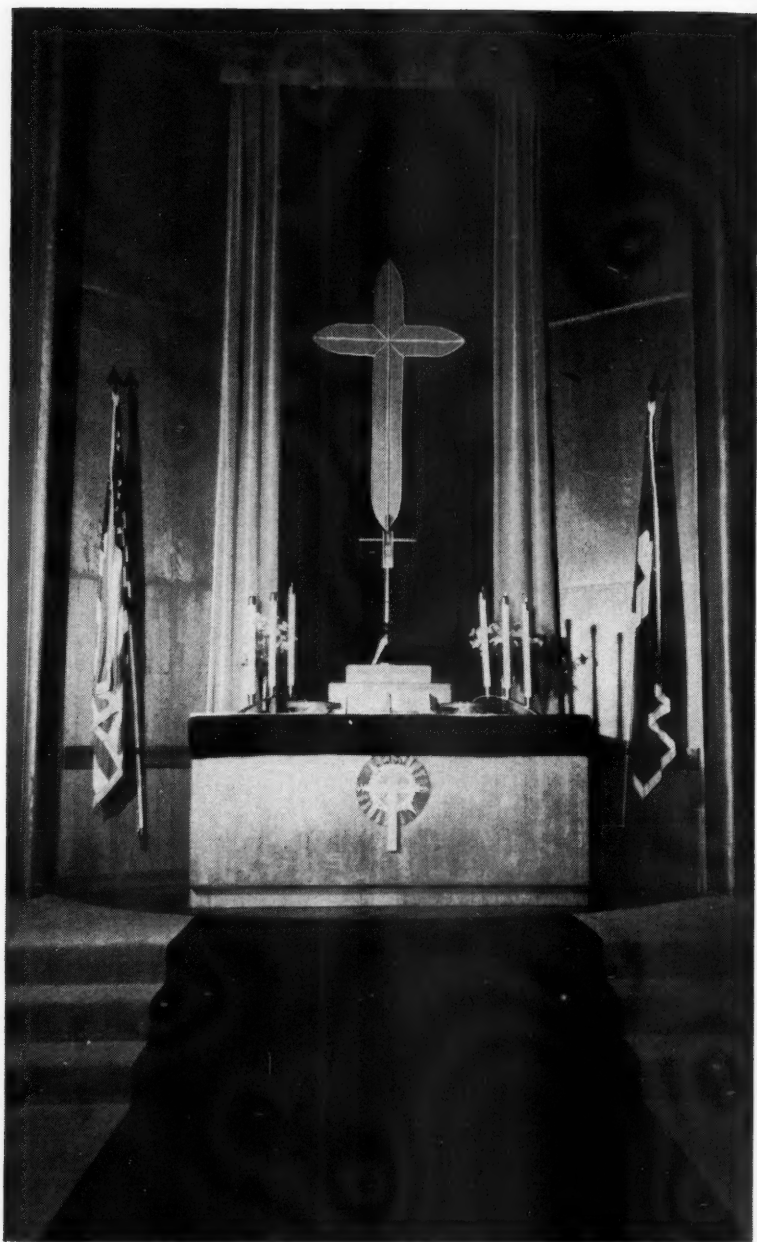
Epic completes "The Big Push" in record time.

In a Signal Corps projection room, Department of Defense and Army officials view the finished picture. The film conforms closely to the screenplay and is given official blessing. This means that picture credits may announce "The Big Push" has been produced in co-operation with Department of the Army."

Army co-operation does not cease with the final review, however. If the picture renders valuable service both to the Army and the Nation, assistance is given through military participation at previews throughout the country. Liaison Branch, Public Information Division may recommend the use of troops, bands and equipment at local theaters as a means of bringing recruiting drives, blood donor campaigns and other worthwhile programs to public attention.

At the New York world premiere of "Force of Arms"—a recent film on the Italian campaign produced in co-operation with the Army—the Women's Army Corps Director, Colonel Mary A. Hallaren, and a group of officers and enlisted women who served in Italy during World War II, were presented to the audience. Colonel Hallaren briefly stated the mission of women in the service and stressed the need for more enlistments. She and other members of the Women's Army Corps appeared on a number of radio and television shows; still other members of the Corps took part in local premieres throughout the Nation.

Since its inception, and particularly in times of national emergency, the motion picture industry has produced feature films, newsreels and patriotic short subjects which have stimulated recruiting, helped build morale and disseminated essential information to the public. Through the medium of moving pictures on military subjects seen by millions in this country and abroad, the prestige of the United States Armed Forces has been enhanced. And through the co-operation of the Army and the motion picture industry an important contribution is being made toward wider understanding of our Armed Forces mission in defense of freedom.



Operating much like a revolving stage, this altar at Sampson Air Force Base chapel is ready for Protestant services. Successive turns bring into view altars of the Catholic and Jewish faiths.

U. S. Air Force Photograph

THE CHAPLAIN AT WORK

CHAPLAIN MARTIN H. SCHARLEMANN

IF THERE is any one term which describes the potentials of today's chaplaincy, that word is "opportunity." In today's military establishment the chaplain is limited only by his own energies and the horizons of his own vision. Every chance is given him to make his program the very best he knows how to plan and execute.

The Air Force chaplain's activities are centered in six main fields—public relations; cultural leadership; humanitarian services; personal counseling; religious and moral education; and, most important, worship and pastoral functions. In all of these areas, the individual chaplain's work is co-ordinated with the efforts of others in such a way as to create a single program.

Starting with the more mundane and progressing to the spiritual, these are the fields in which the chaplain serves:

Public Relations. This widely used and often misunderstood term is officially defined as "any planned program or procedure which will elicit public understanding and good will." Here the element of planning is all-important for good public relations do not just happen; they are almost invariably the result of hard work.

For the chaplain particularly, public relations has a dual aspect. On the one hand, he must be aware of the relationship existing between his own program and the military community he serves. A high quality of performance is required in his religious ministrations; and he must also be concerned with such incidental matters as the make-up and content of the Sunday bulletins, the parish paper and the articles he submits for publication in the unit newspaper.

The chief emphasis in the chaplain's public relations, however, is the contribution he can make to a better understanding of the Air Force by neighboring civilian communities. This aspect of public relations has been crystallized in a program known as community services. The philosophy behind the com-

CHAPLAIN (LIEUTENANT COLONEL) MARTIN H. SCHARLEMANN, USAF, was formerly Wing Chaplain at Sampson Air Force Base, New York.

munity services program is that the serviceman is a part of, rather than apart from, the American community. For that reason he should be given every possible opportunity to enjoy normal family life and to participate in community affairs. The chaplain therefore seeks to develop close liaison with community organizations; he organizes home hospitality programs and outings both on and off the base; he visits ministerial associations and civic societies; and he sponsors choral groups.



Noncommissioned officers discuss problems of character guidance with a chaplain at Sampson Air Force Base.

U. S. Air Force Photograph

Cultural Leadership. Because there is more than a passing connection between religion and culture, the six-point program of the Air Force chaplaincy is concerned with cultural leadership, particularly those phases of cultural activity which can broaden the influence of the religious program. One chaplain may have a wide understanding of religious paintings; another may be thoroughly at home in the realm of music; still another may have a penchant for religious drama. The possibilities in this field are almost unlimited. Weekly programs of recorded music, for example, may be devoted to developing an appreciation of the classics and semi-classical selections. This connection between music as an art and religion as worship is closer than is generally appreciated.

Humanitarian Services. As citizens and members of the

American community, the man in military service is under obligation not to withdraw from the tragedies and difficulties that befall men and communities. Some years ago, Ecuador suffered a violent earthquake, and members of the military immediately went to work collecting money and clothing to send relief to the stricken people of that area. To regularize this type of activity, the Chief of Air Force Chaplains, in consultation with major command chaplains, each year proposes one major project to be sponsored by the Air Force. In 1950 help and relief were furnished to the people of Okinawa, while in 1951 Christmas gifts were collected for patients in veterans hospitals.

In addition, chaplains on each base do a great deal of welfare work, often working directly with local servicemen's wives clubs, the American Red Cross and the Air Force Aid Society, bringing cases of urgent need to the attention of appropriate agencies.

Personal Counseling. The Air Force chaplain of today gets an opportunity to meet every serviceman personally. When the individual enters the Air Force as a recruit, he is interviewed by a chaplain of his faith. The chief purpose of this interview is to determine the man's denominational affiliation and to encourage him to make maximum use of the religious facilities available. Again, whenever a man arrives at an air base, he must, in the course of signing in, also meet a chaplain of the base. Regulations require the official processing form to carry a notation that one of the base chaplains has interviewed the man.

Like every practicing clergyman, the chaplain spends much of his time in counseling. Unlike his civilian counterpart, however, the military chaplain has to handle many cases that develop from the three major adjustments the individual has to make when he enters the service—adjustments to some loss of individuality, to separation from many former habits of living and personal relationships, and to a certain degree of restriction of personal freedom.

Increasingly, many of the chaplain's personal counseling cases spring from home problems and family difficulties. This we have in common with any normal church program.

In all personal counseling efforts, chaplains are encouraged to keep in mind the distinction in objectives between religion and psychiatry. The chaplain aims to be more than a technician. While most of the problems he handles are mundane and material, he nevertheless seeks to bring his own spiritual outlook to bear, if only to suggest that there is a spiritual dimension beyond the immediate problem at hand.



The door of the chaplain is open to all who seek advice and guidance in personal problems.

U. S. Air Force Photograph



A hospitalized airman receives a friendly call from a chaplain at Sampson Air Force Base infirmary.

U. S. Air Force Photograph

Religious and Moral Education. There are really two phases to this primary chaplain activity—instruction in religion and training in moral principles.

Almost every Air Force base today includes a Religious Education Center—a building usually separate from the chapels and devoted almost exclusively to religious education. Here Sunday School classes are held on Sabbath mornings, and catechetical classes on Saturday mornings; here too are held Bible school sessions, Bible and confirmation classes of all denominations. Frequently the chaplain must organize an adequate training program for volunteer Sunday School teachers.

Aiding greatly in the chaplain's work are the Welfare Specialists, as they are called in the Air Force—airmen and airwomen who volunteer for assignment to chaplains' offices. They get their chief clerical training at various technical schools to which they are sent for three months after basic training. Then at the Chaplain School at Fort Slocum, New York, they are trained in office organization and administration; operation and maintenance of audio-visual aids and duplicating machines; supply; electric organ maintenance; and in assisting the chaplain in preparation for religious services.

In the moral education sphere, the chaplain helps carry on the Character Guidance Program. This activity dates back to October 1946 when the first Universal Military Training Experimental Unit was established at Fort Knox, Kentucky. Since that time, training in citizenship and morality—or "character guidance" as it is now known—has developed into a formal program in Departments of the Army and Air Force. The Army requires a minimum of seven hours of such instruction during basic training and two hours per month in units wherever the situation permits as determined by the local commander. In the Air Force, regulations require that every trainee receive eight hours of instruction in character guidance. This is carried over into the life and work of the air base by periodic, usually monthly, instructional periods given by the chaplain.

Individual problems arising in the field of morality are often handled by character guidance councils, down to squadron level. Chaplains also serve as members of these councils down to the group level.

Another phase of religious and moral education is concerned with the rehabilitation of prisoners; the chaplain's work here ranges from personal counseling and character guidance to religious instruction.



The Sampsonaires, a choral group sponsored by chaplains at Sampson Air Force Base, prepare for a radio broadcast.

U. S. Air Force Photograph

Worship and Pastoral Functions. The military chaplain, in supervising and promoting all of these other activities, must never lose sight of his primary obligation. He is the minister of a military parish. He baptizes people; he marries them; he buries them; he visits them when they are sick; he counsels them when they are troubled. And, while rigidly avoiding any semblance of proselytizing, he must never permit creed or denominational tenets to deter him from giving any kind of spiritual support which he can legitimately offer.

Most of all he must insure that people of all faiths are given the opportunity to worship according to their own convictions and customs. The purpose of worship is to bring man into closer relationship with his Creator. While the chaplain does not conduct services outside his own professed faith, he can and should provide facilities for such services and arrange for them to be led by another chaplain or by a local minister of the appropriate faith. Guiding and encouraging people to give public expression to their beliefs is, indeed, a high privilege and one of particular significance in these confusing times. Before their respective altars, chaplains of all creeds must make common cause in combatting, through their religious services, the doubts, confusions and heresies of our day.

FRONT LINES IN THE COLD WAR

CAPTAIN EDGAR M. JONES

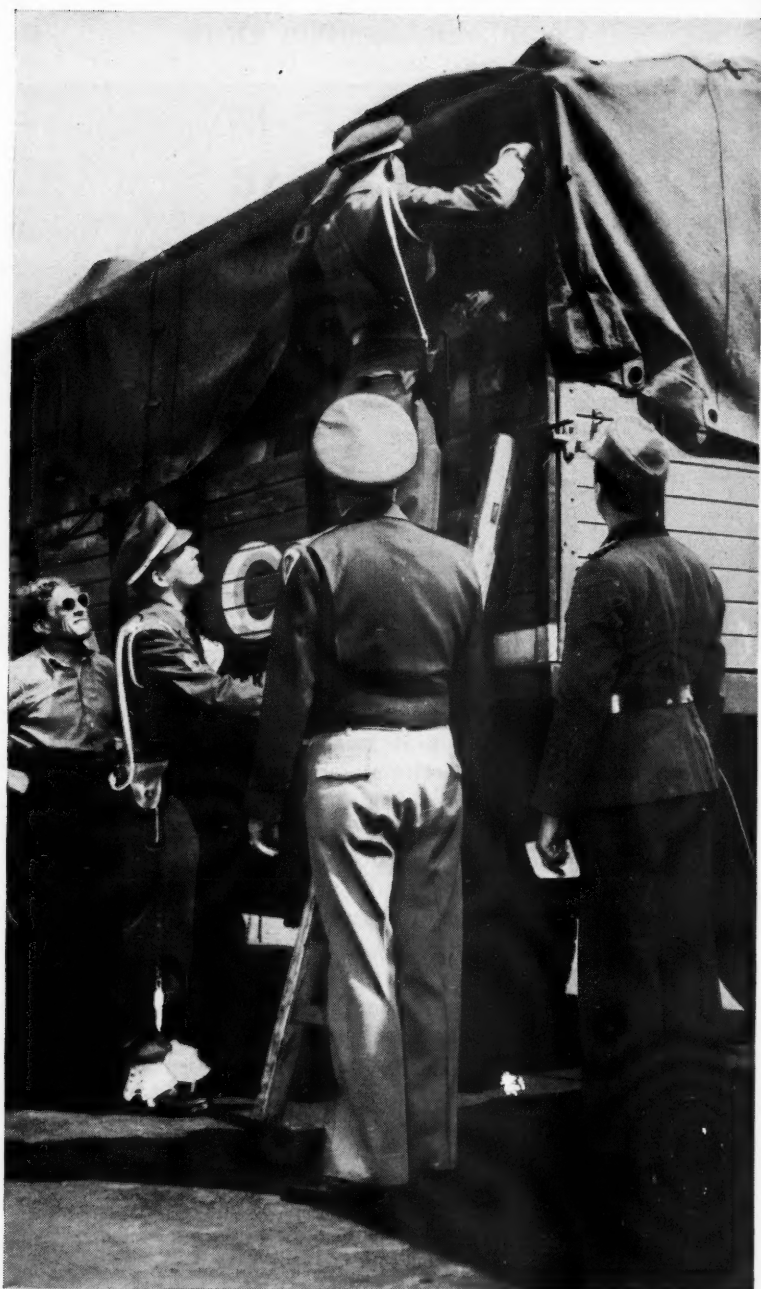
This article describes the activities of the Military Police Customs Unit during the occupation of Germany. With the conclusion of peace with Western Germany, it is expected that some of these functions will be taken over by the German Government.—Editor.

IF THE Cold War can be said to have any visible front lines, then a small group of American Military Police may be said to be manning that line. It is a line devoid of spectacular action, although the possibility of physical danger and violence is always imminent. And while there is no glory and no widespread recognition for these men of the 7751st Military Police Customs Unit, their organization is wielding an influence and responsibility all out of proportion to its numbers in helping to advance the cause of the Western nations—and especially the cause of the United States.

Along stretches of the Bavarian frontier which face the Soviet Zone in Germany and also Czechoslovakia and Austria, men of the 7751st are on duty. They do not search for escapees or smugglers or infiltrating foreign agents—nothing so spectacular and dramatic as that. Daily they go through the drudgery and repetitive detail of checking cars in isolated, dirty rail yards, often working alone far from mess hall or barracks.

As a result of their efforts, millions of dollars worth of goods which could have been used by Russia or satellite countries for manufacture of war materiel have been intercepted at the borders. That in essence is the job being performed by these Military Police. Theirs is difficult and often very delicate work. If a shipment of goods is stopped as potential war materiel, the shippers can and do protest vehemently. And sometimes there

CAPTAIN EDGAR M. JONES, Military Police Corps, is on duty at Headquarters, Second Army. He formerly served with the 7751st Military Police Customs Unit as Officer-in-Charge, Bremen Enclave, and as Inspecting Officer, Austrian and Czechoslovakian border in Bavaria.



Military Police inspect a truck in the American sector of Berlin prior to its exit into Russian-held territory.

HICOG Photograph

can be international repercussions which reverberate up to the very top echelons of military and diplomatic circles.

Take for instance the case of twenty-eight carloads of pipes consigned to a Czech firm. When the Military Police inspected this materiel, they became suspicious and ordered the shipment held. The Czechs claimed they were water pipes. To the Military Police they looked suspiciously like oil casings which could very easily find their way to Rumanian or even Russian oil fields. The enraged Czech authorities were so incensed over the stoppage that they cut off coal shipments to the porcelain factories in Bavaria. This seriously affected the West German economy; a minor diplomatic crisis had been created. The whole matter finally had to be settled on levels of diplomatic discussion high above the field worker who first inspected the car.

That single case epitomizes the many diverse elements that ebb and flow in the complicated situation that exists today in Germany. Even on the highest levels of statecraft, it is difficult to make a clear-cut decision regarding shipments from Germany to the satellite countries. It must be remembered that Western European countries are dependent on some sort of trade in order to maintain their normal economies—and it is in the American interest to rebuild those economies. For Germany and some of the other western nations to switch entirely to the dollar areas for their raw materials would well nigh bankrupt a Europe that is scarcely solvent even today.

One expedient has been to work out agreements which specify the kinds of goods, the quantities, and the kinds of payments that can be made in international trade. Thus some articles can be placed under absolute embargo while others not highly rated as potential war goods can be subject to quantitative control and within limits may be shipped to the East. A system of licensing seeks to control the flow of such materiel at the source.

A recent step in the continuing battle to curtail the availability of critical materiel to Iron Curtain countries is the agreement reached in January 1952 between the United States and ten Western European nations, to prevent re-export of such materials which may be received from the United States.

Russia and her satellites need many products manufactured in Germany and other western countries. Some of these needs are for civilian consumer goods, others are essential in manufacture of war materiel. It is often extremely difficult, as in the case of the pipes, to be sure just what the ultimate use may be. In any case, Allied interests demand that no goods, manufactured

or raw, be sent behind the Iron Curtain for war purposes. Consequently the inspection of freight at border points has become an increasingly important phase in the Cold War.

As often happens, the 7751st Military Police Customs Unit evolved to fill a special need. The unit was originally organized by the European Command of the United States Army in April 1949 as a special purpose organization to combat smuggling and black marketeering in the United States Zone. At that time floods of black market items came into the American Zone. It was difficult to call it smuggling because German customs men were hesitant about asking questions of Allied persons, much less snooping through their baggage or searching for contraband.

Creation of a special Military Police unit was ordered and soon volunteers were being trained. Rigid standards were established. Duty stations were designated along the international frontiers within the United States Zone. As soon as the German customs men found that their jobs would not be endangered, and when it was demonstrated that rigid border inspections would assist the sagging German economy by bringing in added tax revenue, they co-operated enthusiastically. This was particularly true at highway control points where clear division of labor could be made. The Americans inspected the luggage of Allied forces while the Germans took care of other nationals. In the vicinity of Salzburg and Innsbruck in Austria, and of Berchtesgaden, Garmisch and Oberammergau in Germany, the heavy tourist traffic kept all hands busy during all hours.

The men stationed at railway crossing points, however, were not so pressed and were consequently able to take more time preparing detailed reports on the kinds and amounts of traffic passing their check points. At first these reports were merely made available to economic experts as an indication of trade conditions. But these commercial freight records also provided a wealth of information on the consignor and consignee, description of the goods, quantity, weight, value and routings.

All of these records were duly turned over to the civilian experts for study until several incidents occurred. The first was discovery of material listed as scrap but which proved to be some fifteen tons of serviceable and unused copper wiring consigned to Hungary. Since nobody seriously objected to the shipment, it was allowed to go on its way. But when, two months later, another shipment of alleged scrap turned out to be a hundred aerial bomb casings, capacity half ton, they were ordered cut up by acetelyne torch. And then some serious con-

sideration was given to means of remedying the entire situation.

As a result, the emphasis of work by the Military Police Customs Unit was shifted from checking tourists to heavier concentration on freight movements. Today the Unit operates customs control points at international airports within the United States Zone, in the Bremen and Berlin enclaves and at rail points all along the Bavarian frontier.

In most instances these duty stations are remote from other military facilities. Along the Czech frontier some of the men drive their jeeps up to fifty miles inland to get gasoline and food supplies. Mess is provided by putting the men on station allowance and giving them access to military commissaries. They hire German cooks because the strength at any billet is usually under ten men who must take turns in border watches around the clock. They also make weekly patrols to points manned by German customs and border police.

The entire strength of the Unit is twelve officers and one hundred and sixty-four enlisted men—all noncommissioned officers. Paper work on personnel records and monthly payrolls is turned over to the nearest post or sub-post. Control points are usually administered by a master sergeant. He in turn is supervised by an area inspector, either a lieutenant or a captain.

When a member of the Customs Unit finds something that looks suspicious he reports it immediately by telephone and the work of investigating the shipment is quickly under way. Some of the materiel clearly is on the banned lists but other items are more difficult to judge. And often trying to find out just who did ship the goods in question is impossible because of the devious "triangular trade" methods that are used by opportunists who flourish in the twilight zone of world trade.

A typical "triangular trade" deal was that involving eleven tons of highly polished bearings. The shipment arrived at rail yards on the German side of the Czech border. All the papers were in order, indicating that the ball bearings were in transit from a Swiss manufacturer. An American Military Policeman nevertheless opened the boxes and discovered packing slips showing that the bearings had been made in Schweinfurt, Germany. Investigation revealed that they had presumably been sold originally to an Englishman in Antwerp, Belgium. From there they went to a French concern which shipped them to Switzerland; the bearings then were dispatched to Germany as a transit shipment for the Czechs. The shipment was seized by United States East-West trade authorities in Germany and

somebody lost approximately seventy-five thousand dollars, the value of the bearings. But proving just who may have been the real violator is still another problem.

Licensed exports from another country in transit across Germany to the East are outside the jurisdiction of the Customs Unit. But members still copy down all data appearing on the shipping documents and, as in the case of the ball bearings, suspicious shipments can be identified. Formal procedures for stoppages and clearances were adopted in May 1950. During that year the members of the Unit held up some two hundred shipments. In 1951, almost seven hundred shipments were detained. And while not all of these were turned back, many were barred from export. Admittedly, however, some of these barred shipments conceivably have been rerouted to the west and to the north where the American Military Police were not on duty and thus may have reached the satellites.

Devious means of getting around the export restrictions are sometimes uncovered. One such case was a shipment to Czechoslovakia of about ten tons of what looked like laundry mangle parts labeled as a "soot machine." Upon closer investigation it turned out to be machinery for making carbon black, an ingredient used by automobile tire manufacturers to toughen rubber and to lengthen the wearing life of their product. There is an acute shortage of this product within the Soviet bloc.

The individual Customs Unit member feels that his work is vital and important in winning the Cold War. He is supported by words of praise from a United States Senate Committee and also by a unit commendation given by the Department of State.

Some memorable effects can be noted, too. Delays at the frontier while investigating the validity of suspicious export licenses have disrupted Communist time tables. Risks involved in trading with the East have caused German manufacturers to increase their prices; now they demand substantial down payments from their Communist customers in advance. Extra costs for circuitous routing of freight just to avoid the inspections have also thrown Red-dominated industry budgets out of line.

And what do the Communists themselves think of it all? Probably the best indication of the Unit's effectiveness is that boiling-mad Communist newspaper editors often refer to the men of the 7751st Military Police Customs Unit, EUCOM, as "war criminals."

EXPLORING THE OCEAN DEPTHS

MAJOR JAMES F. HOLLY

TWO FORMER World War II seaplane tender type vessels which were taken from the moth-ball fleet in 1948 and refitted are today carrying forward the Navy's exploration of the fathomless, mysterious ocean depths. Although several privately endowed research agencies operate similarly equipped ships, the *Rehoboth* and the *San Pablo* are today the only Navy craft assigned to full-time collection of data on the oceans. Usually working together, they are part of the Service Force, Atlantic Fleet and come under the technical direction of the Navy's Hydrographic Office, an agency responsible to the Chief of Naval Operations.

Each ship is three hundred and ten feet long, displaces about twenty-seven hundred tons and carries a crew averaging one hundred and fifty men and twelve officers. These four-engine Diesel-powered ships are self-sustaining units; each carries its own sick bay and medical personnel, fresh-water distillation equipment, laundry, barbershop, bakery and sufficient provisions, fuel and supplies to permit extended operations away from bases while on hydrographic and oceanographic missions.

"Hydrography" and "oceanography" are two terms which are easily confused for, in fact, their meanings overlap to some extent. In general, hydrography consists of engineering surveys of shore lines and depths to obtain information needed in the production of charts for normal navigation and for amphibious operations. It is therefore an activity primarily concerned with ocean boundaries, depths and dangers to navigation. Oceanography is more of a pure science concerned with investigating the characteristics and properties of the oceans and oceanic environments. The knowledge thus gained is oftentimes of immense practical importance in marine, commercial and military applications.

MAJOR JAMES F. HOLLY, Infantry, formerly an Associate Editor, ARMY INFORMATION DIGEST, participated in an oceanographic survey training cruise aboard the USS *Rehoboth* early in 1952.

The first organized effort in oceanography in the United States began one hundred and ten years ago, in 1842, with the appointment of Lieutenant Matthew Fontaine Maury, USN, as officer-in-charge of the Navy's Depot of Charts and Instruments. Lieutenant Maury compiled numerous charts which were widely sought and used by seafaring men of many countries. He also published, in the 1850's, the first book on oceanography, *Physical Geography of the Sea*. From his work the Navy's Hydrographic Office traces its origin although the Office itself was not formally established until 1866.

Early oceanographic information came from the logs and reports of Navy and merchant ships gathered incidental to their normal cruises. Not until the 1870's were any vessels engaged full time in oceanographic research. During that decade the USS *Tuscarora* worked extensively in the Pacific to determine the pattern of bottom topography as a guide in cable laying, and the British ship, HMS *Challenger*, spent several years investigating all oceans but the Arctic. From these early efforts the modern science of oceanography has developed.

In its operations the Division of Oceanography in the Hydrographic Office works in close association with other governmental, private and international agencies including the U. S. Coast and Geodetic Survey, the U. S. Geological Survey, mapping and charting organizations of the Army and Air Force, Office of Naval Research and the Naval Research Laboratory, U. S. Fish and Wildlife Service and the U. S. Weather Bureau. Liaison is also maintained with universities and with research agencies such as the Scripps Institution of Oceanography in California, the Woods Hole Oceanographic Institution in Massachusetts and the International Hydrographic Bureau established at Monaco under League of Nations sponsorship in 1921.

Although the Hydrographic Office for many years has utilized ships and smaller craft for hydrographic work, it had no vessels devoted exclusively to oceanographic studies until the re-commissioning of the *Rehoboth* and *San Pablo* in late 1948. For many years the Office depended on data collected from privately sponsored research agencies, from reports of merchant ships and from information collected by trained personnel on Navy ships. Even though a large amount of material was thus gathered there were large gaps. Some ocean areas were little traveled and most mariners were uninterested in making soundings in deep water where no navigational hazards existed. Furthermore much oceanographic data could be collected only by stopping for

several hours at a particular geographic point, a practice often annoying to a ship's captain. Now, with the full-time operations of the two survey vessels supplemented by reports from other Navy and merchant ships, the Navy's oceanographic work is moving forward faster than has been possible in the past. So far the ships have worked in the Atlantic Ocean.

An oceanographic station is normally selected in advance—that is, a position is pin-pointed by geographic co-ordinates of longitude and latitude. Upon arrival, regardless of the time of day or night, trained personnel stand by to carry out their duties. Technicians obtain water samples at various depths by using Nansen bottles clamped to a stainless steel cable which is paid out at a rate of about five hundred feet per minute. A shallow cast may run to two thousand feet below the surface, a deep cast as much as twelve thousand feet down.



Oceanographic survey ships USS San Pablo and USS Rehoboth moor at the International Hydrographic Bureau, Monaco.

U. S. Navy Photograph

The sample bottles remain open at both ends during the descent so that water passes through them freely. When the whole cast is set at the desired intervals of depth a "messenger" weight is released and allowed to slide down the cable to the topmost bottle. There the messenger trips a device on the bottle causing it to turn upside down, simultaneously closing the bottle, breaking the mercury columns in two sets of thermometers, and releasing another messenger which trips the second bottle and

so on down the line. Recording the data begins as the bottles are retrieved and racked up. While one technician notes depths and temperatures, another draws off samples to be used in determining oxygen content and salinity.

There are numerous devices for obtaining samples of material on the ocean floor. In shallow waters a clam-shell bottom sampler is sometimes used to obtain small amounts or, at slow speeds, an underway bottom sampler or "scoopfish" does the same work. Knowledge thus acquired is helpful in solving problems involved in mine-laying, anchoring buoys, and fishing for scallops and oysters.

In deeper water, the most satisfactory type of equipment for bottom sampling is a piston corer. This device can bring a twenty- to sixty-foot stratified sample to the surface if the bottom is unsolidified. The piston corer, weighing more than half a ton, is lowered to great depths on a loop of cable. When the lower end of the corer touches the bottom a trip releases the loop and in effect provides a short free fall which sinks the corer into the ocean floor.

Normally these core samples are given only a cursory examination on shipboard. Then they are either extruded or sent in the corer pipe to research laboratories on the mainland for detailed analysis. The scientists use still another type of bottom sampler, the Dietz dredge, to get samples of loose rock, gravel and other solids from the floor of the sea.

Although the basic elements of oceanographic research are temperature, pressure and depth, salinity and composition of bottom samples, there are also many supplementary studies carried on with standard and experimental items of equipment. On station, regular checks are made of water transparency under varying light conditions. Secchi disks, about twelve inches in diameter, one black and one white, are used in pairs. Each disk is lowered overboard by measured lines and the greatest depth at which each disk is still visible is then recorded. The value of such information to a submarine commander is obvious.

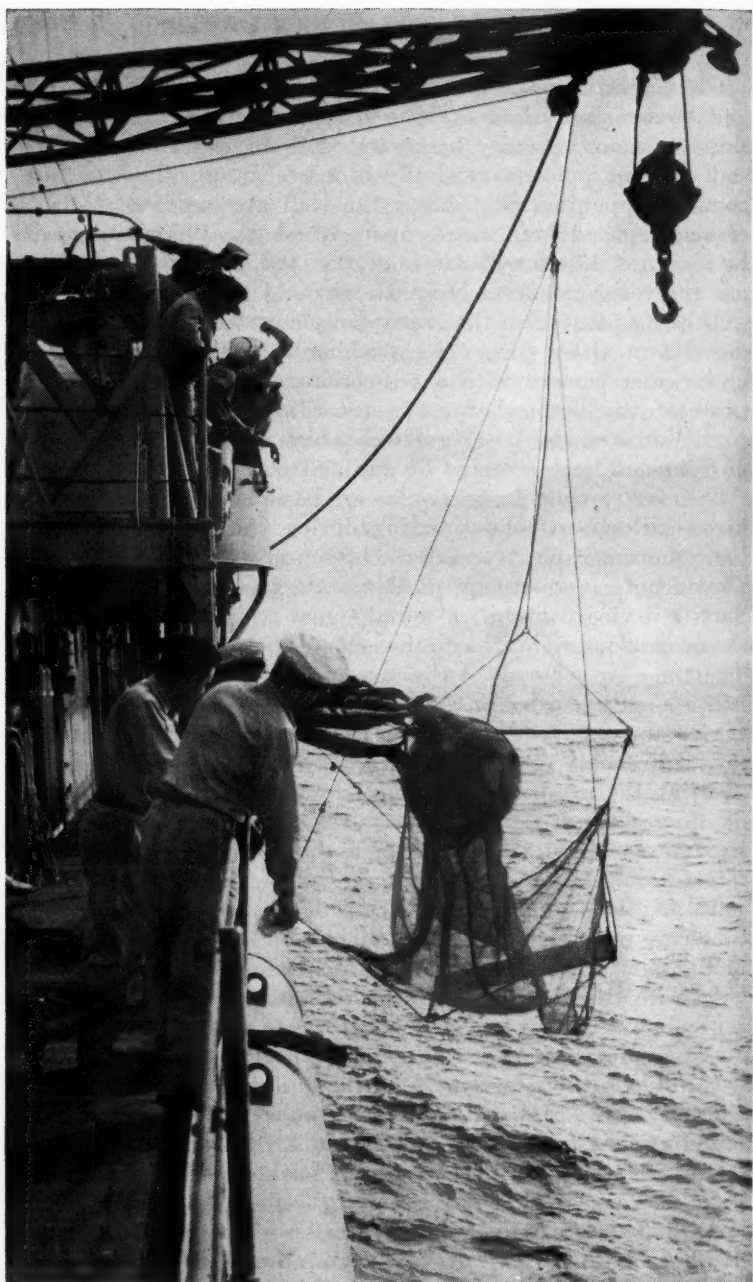
Another device, an experimental photometer, similar in principle to the ordinary light meter, measures the amount of light absorbed by sea water. For comparison a deck cell measures and records the total light hitting the surface of the sea against that obtained by a sea cell which is lowered to various depths; with sets of filters the amounts of various light colors penetrating the sea can also be obtained. Beyond a depth of about two thousand feet there is no light whatever.

Of increasing importance to mariners is the study of waves and swells since these have a direct effect on the safety of ships at sea. Currently being tested is an experimental wave staff—a long pole set vertically in a twelve-foot diameter horizontal dampening ring. Along the staff are exposed electrical contacts spaced four inches apart which are linked internally by resistors. As sea water rises on the staff, the salt water shorts out the resistors successively. Height and fall of each wave as well as frequency are thus recorded electrically by a shipboard instrument. Other pieces of experimental equipment include an underwater camera with a self-contained light for taking pictures of the ocean bottom, a recording depth gauge and a pyrheliometer, the latter a device which measures the intensity of light and heat reflected by sun and sky.

Two instruments in particular are basic to any oceanographic investigation—an echo-sounding device (fathometer) and the bathythermograph. Normally echo-sounding equipment is employed only in relatively shallow waters as a navigational aid. Such a device transmits a sound signal from the ship's hull to the ocean floor and picks up the echo of the signal as it rebounds. The time lapse involved is converted electrically into a depth reading and recorded on a graph to show a continuous record of the depth traversed. The Navy's two oceanographic vessels keep this equipment in continuous operation while underway. By utilizing the proper scale the instrument can record accurately depths ranging from a few feet to six thousand fathoms (thirty-six thousand feet). The greatest depth presently known is 35,640 feet (almost seven miles).

Taking deep soundings by mechanical means is laborious and time consuming; consequently, though the general configuration of the ocean floor has been known for some time, it has only been with the development of echo-sounding that ocean topography could be developed in detail. Maps of the ocean floor are obtained by working a "grid" of a specific area on the high seas—that is, a series of parallel runs crossed at right angles by another series of parallels. The graphs obtained from echo soundings are plotted in chart form to show detailed terrain features of the ocean floor. Several Atlantic areas have already been surveyed in this way.

With detailed bathymetrical charts on hand, ships will one day be able to navigate by identifying the topographic features on the ocean floor, thereby fixing the ship's position as accurately as by celestial navigation. Such charts of undersea topog-



This mid-water trawl is trailed at pre-determined depths to capture large specimens of marine life for study.

U. S. Navy Photograph

raphy are also extremely important in submarine navigation.

In certain areas of the ocean, as the profile trace of the ocean bottom appears on the fathometer graph, a lighter trace also is evident, running near the surface during darkness, then with dawn and full light dropping to between two hundred and three hundred fathoms. Known as a "phantom bottom," this trace is probably caused by large schools of squid or other animal life which feed in the surface areas at night and drop lower during the day. Dense enough to reflect part of the echo-sounding signals, they actually produce a phantom trace on the fathometer graph.

The bathythermograph, commonly called a BT, is an instrument similar in shape and size to a 2.36-inch rocket projectile. Cast overside on a light cable, it operates on much the same principle as an automobile thermostat, plotting by a stylus on a smoked glass slide a line representing temperature in relation to pressure (depth). From these readings skilled oceanographic technicians can determine water characteristics and gain further information on ocean currents.

While on station, ocean currents can be determined rather easily. Underway, however, the problem was most difficult until the development of the geomagnetic electro-kinetograph, more commonly referred to by ship personnel as the "geek." Trailed by cable while underway, this device records the intensity and direction of flow of ocean currents through measurement and amplification of an electrical current induced by the water masses flowing through the earth's magnetic field.

Still another item of research equipment—a conical net of fine mesh called a plankton net—is towed slowly in water to obtain specimens of microscopic plants and creatures. The mid-water trawl is a much larger net, thirty feet long with a ten foot orifice, equipped with a V-shaped fin at the opening which planes the trawl downward where it ensnares larger specimens of marine life.

These then are the principal research devices used by oceanographers. As a relatively new science, the possibilities of which only became broadly recognized with World War II, what are its frontiers? And what are the concrete results that have already been achieved?

While basic ocean characteristics in certain areas have already been determined, the oceans are nevertheless so vast in relation to land masses that many portions are still virtually uncharted by detailed oceanographic investigations. To be assigned to

previously unexplored parts of the seas is an exciting experience. Oceanographers refer to such spots as "holiday areas" because all work is new. Even in areas where some exploration has already been done there is always the possibility of discovering a new mountain peak or a previously unknown ocean deep. Beyond the one hundred fathom bottom contour the oceanographic field is still wide open for scientific adventures.

The climatic influence on man's existence of the great ocean currents has long been known. But still a virtually uncharted frontier is the study of the ocean's accumulation and transfer of solar heat, and the constant conflict of warm currents and arctic and antarctic encroachments as great masses of waters from frigid areas roll into the ocean deeps.

Oceanographers are investigating the close friendship of aerology to their work as well as the forecasting possibilities based on wave and swell studies. Because of their life-and-death importance in amphibious operations, such studies and analyses have overriding military significance.

So far the *Rehoboth* has verified the existence of two previously unknown submerged peaks off Bermuda in the Atlantic basin, an underwater Great Plains area. Much new material has been collected on the mid-Atlantic ridge which parallels the western shore of Europe; and further information has been gained on the "Mediterranean outflow" current that spills over the sill of the Straits of Gibraltar and the compensating flow of Atlantic water that races into the Straits as a shipping hazard.

Core sampling by oceanographers has given definite reinforcement to scientific conclusions. For instance, a core sample taken from the Dogger Bank in the North Sea contained shells of a type found only in fresh water—proof that millenniums ago the area was once dry land which has since settled below sea level. A similar sampling in the Mediterranean contained grains of sand which could only have been wind-eroded and wind-borne from the Sahara Desert hundreds of miles away.

On several cruises the *Rehoboth* and *San Pablo* have carried equipment developed by Columbia University for seismic studies. Operating on the same principles as the echo-sounding fathometer, this technique utilizes an underwater explosion to measure, not the depths of the ocean, but the character of the earth masses and formations under the soft muck on the ocean floor. The process was developed because of the difficulty in obtaining samples of strata below the muck. The absorption and return time of the shock waves created by the explosion can

be measured and, by interpretation, specialists can identify both composition and extent of the underlying rock structure of the ocean floor.

The commercial implications of this work become increasingly important as our land accesses to natural resources diminish. Commercial fisheries and the Fish and Wildlife Service are deeply interested in the biological aspects of oceanography. The great guano deposits of the Chincha Islands in the Pacific off South America, for example, are almost entirely the result of the abundant sea life which provides food for the birds inhabiting the islands. The prolific sea life in turn is the result of a strong upwelling in the area of cold water heavy-laden with oxygen which encourages plant and animal life.

From a military viewpoint one of the most important developments resulting from oceanographic research is SOFAR (sound fixing and ranging). This is a method for locating ships in distress and downed aircraft at sea by transmission of underwater sounds. A small bomb is dropped overboard from the disabled craft and sinks until it is exploded by water pressure at a pre-set figure. Much of the sound of the explosion is trapped in an underwater sound channel which carries for as much as three thousand miles. Shore station hydrophones probing the sound channel are able to pick up the noise of the explosion. From the data recorded through three or more listening posts, the point of detonation can then be plotted to within a ten-square mile area by checking and comparing the arrival times of the signal at each station.

The sound channel phenomenon utilized in SOFAR usually takes place fifteen hundred feet below the ocean surface but in arctic waters it may occur at much shallower levels. Utilization of this sound channel resulted from oceanographic data collected on temperatures, pressure and to a lesser extent salinity. It was found that sound travels in salt water at roughly four times (forty-eight hundred feet per second) the atmospheric speed (eleven hundred feet per second). However the velocity goes up with increases in both temperature and pressure (depth). As a result much of the sound released by the SOFAR bomb is trapped in a layer, the sound channel. Obeying the same laws of refraction as light waves, the sound waves bend toward the layers of lowest sound velocity. Above these layers sound velocity increases, since the water temperature increases near the surface of the ocean and more than offsets the pressure decrease. Below the layer, the temperature is nearly constant,

only a few degrees above freezing, and the pressure increase causes an increase in sound speed. All sound beams therefore tend to be trapped in the layer of minimum sound velocity, creating the phenomenon known as the sound channel.

SONAR (sound navigation and ranging), used in submarine and antisubmarine warfare, also is tied in with oceanographic work. Like SOFAR it utilizes the underwater transmission of sound, in this case sound pulsations emitted by the submarine itself while stalking enemy craft. Success of this method depends on detailed knowledge of pressure, density and salinity factors. Oceanographic researchers are thus working on basic problems which will make submarine warfare more effective.

Scientists are now considering the waters of the ocean in somewhat the same manner as meteorologists look upon the atmosphere. As great air currents affect the lives of men so both surface and deep ocean currents affect man's existence. So too, oceanographers are studying the high and low pressure areas of the seas. With their continuing accumulation of data in marine chemistry, physics, geology and biology, they stand at the threshold of a science whose possibilities have scarcely been tapped.

The men of our Navy whose mission it is to collect and evaluate data on the oceans carry a heavy responsibility. Although their primary interest is military, they have made substantial contributions to the general fund of scientific knowledge and to allied commercial activities as well.

To date the *Rehoboth* and *San Pablo* in a little over three years of oceanographic work have steamed nearly two hundred thousand miles, taken over three hundred ocean-bottom samples, examined and analyzed over fifteen thousand samples of surface and subsurface water. They have occupied nearly eight hundred oceanographic stations and made over twenty-five thousand bathythermographic observations. All of this work has been done under typical sea conditions ranging from the best to the worst, in the coldest to the hottest weather that the Atlantic and its contiguous seas are capable of creating. One of the *Rehoboth's* officers summed up the endeavors of his crew succinctly: "If our effort saves just one ship and the lives of its crew, the cost of our work will be money well spent."

The Storming of Chapultepec

Chapultepec, a steep hill rising from an ancient cypress grove at the southwest gate of Mexico City, had been from early times the seat of rulers of the country. There the Montezumas had their palaces; and there in September 1847 strong forts and redoubts surrounded the summer palace of the president. That president, Santa Anna, had under arms at least twice the number of men at General Winfield Scott's disposal. The invading army, reduced by battles—Cerro Gordo, Contreras, Churubusco—and still more by sickness had, in spite of reinforcements, shrunk from its original strength of ten thousand to about seven thousand.

Although the way to the city lay open before his forces, General Scott wished to spare the capital and attempted to negotiate with Santa Anna. Failing this, Scott carried on an artillery duel and on 13 September gave the order to storm Chapultepec. The spectacular hilltop fortress was forbidding and many believed it to be impregnable; but Scott's engineers, among them Lieutenant Colonel Robert E. Lee, perceived a practicable method of assault.

In the early morning the heavy guns opened up. The infantry advanced and drove in the outlying Mexican troops; but upon reaching the fortress walls surrounding the palace there was a terrible delay—the scaling ladders to mount the wall had not arrived. The men lay down, helpless under a galling fire, and waited. When at last the ladders came the troops surged up and over the walls. The garrison was overcome after a short hand-to-hand struggle. The citadel of Chapultepec was taken and Mexico City lay at the victors' feet.

The scene on the back cover is reproduced from a print published by the New York lithographing firm of Sarony and Major in the late 1840's. The original painting by James Walker hangs in the Capitol in Washington, D. C.



A
I
D
—

S